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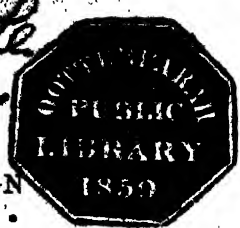
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BRITISH AND FOREIGN

MEDICO-CHIRURGICAL REVIEW.

JULY, 1857.

BRIEF
1857

PART FIRST.

Analytical and Critical Reviews.

REVIEW I.

Of Nature and Art in the Cure of Disease. By Sir JOHN FORBES, M.D., D.C.L. Oxon., F.R.S., Fellow of the Royal College of Physicians, Physician to the Queen's Household, &c., &c.— London, 1857. pp. 264.

THE inquiry which Sir John Forbes suggests, as to the relative powers of Nature or Art to cure Disease, is one that involves a variety of questions affecting the science, the practice, the polity, and the ethics of medicine. The regiminal treatment of disease is by no means an invention of modern date, but its merits, as opposed to a more decidedly medicinal treatment, divided the ancients, as it has formed a subject of discussion in more recent times. The public have also ever been alive to the question, in evidence of which we would only quote one lay-author, who, in the 'History of a Foundling,' observes:

"If the number of those who recover by physic could be opposed to that of the martyrs to it, the former would rather exceed the latter. Nay, some are so cautious on this head, that, to avoid the possibility of killing the patient, they abstain from all methods of curing, and prescribe nothing but what can neither do good nor harm."

Fielding evidently thought Nature was not to be trusted, for he continues:

"I have heard some of these with great gravity deliver it as a maxim, that Nature should be left to do her own work, while the physician stands by, as it were, to clap her on the back, and encourage her when she doth well."

The subject is one that every tyro in the profession occasionally reflects upon; but it is essentially one upon which the opinion of men who rank highest in the profession, by the length of their experience, or the labours by which they have achieved distinction, deserves to be listened to with the most respectful attention. The

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book before us is the production of one who, after having been engaged in the practice of medicine for fifty years, feels, to employ his own words, that his profession has claims on him for much more than he has hitherto been able to give it, but that he is called upon now to communicate any information he may possess, if he is to communicate it at all.

"In doing so," he continues, "I cannot help being impressed with the feeling of solemnity which naturally accompanies any act that is to be the last of its kind. And in this mood I would fain regard the present work in the light of *A Legacy to my younger brethren*, which, slight as it is, may not be found altogether unworthy of their acceptance. I would indeed bequeath it in full confidence of its value, if I might reckon on its being received in the same way as the Legacy of the Pot of Gold in the fable was received by the rustic testator's sons. If my book—though, like the old man's vineyard, really containing in itself no gold—should only lead to the zealous cultivation of the subject of which it treats, the result could not fail to be of inestimable value to the cultivators. For, on the profounder, more critical, and purer study of Nature as manifested in diseases, rest, in my judgment, the best hopes of improvement in the medical art; and to this study the spirit of my book may, at least, lead the way and give the initiative, if its actual contents are found of lesser importance."

The error which the author regards as the great taint of medical science, and which he combats throughout this book, is a want of trust in the powers of Nature to arrest the processes of disease, and a consequent overweening faith in remedial agents as the sole means of cure. His main object is to endeavour to expose these misconceptions, so as to impress the minds of the younger and less prejudiced members of the profession with the truth and importance of the principles advocated, and also to prepare a work which might convey to educated members of the general public a juster knowledge of the real nature of disease, and the true characters and powers of the medical art. Dealing professedly in deductions of which the premises are supposed to be known to the reader, we fear that, however intelligible the author may render his views to professional readers, the unprofessional reader will fail to appreciate them, because the first elements—the actual observation of disease—will be wanting to enable him to judge of the justness of Sir John Forbes's remarks. The current theories of the day generally ooze out sufficiently to infect the lay public; a true theory of disease, one, to use Mr. Spencer's words, of which the negation would be both false and inconceivable, once established among our Askaniadai, and the public would not fail speedily to be imbued with so much knowledge as would be good for them. Until our own banquet is secured, we do better not to invite strangers to the feast; but we may prepare them against the happy commutation, by placing before them such sound and wholesome fare as they can safely digest. Let the public, high and low, be instructed in the plain, well-proved facts of anatomy and physiology; let them learn the wonders of our healthy fabric, and the greater marvels of the functions that minister to life; and thus prepared, we will induct them into the inner shrine, when we ourselves have raised the veil. Our duties to ourselves and to our high calling demand an humble,

earnest, and assiduous devotion to the study of Nature in health and disease; we may thus ultimately succeed in understanding, to the full of man's capacity, workings that are yet mysterious; we may thus obtain, at last, what is the very starting-point of Sir John Forbes's Theory of Therapeutics—a *Natural History of Disease*.

But, though we may be a long way from the goal, we must not ignore the fact that the whole tendency of the present age is to arrive at an interpretation of disease, such as the author shadows forth; Physiological Pathology, which forms the title of more than one work of distinction of recent date, has for its object the search into the relation of the morbid processes of disease, to the analogous processes of health; or into the mode in which the normal changes of the body are perverted, in the disturbances constituting a deviation from health. What is the meaning of the term metamorphosis of tissues, now so often employed? Is it not applied equally in physiological and in pathological conditions, and do we not know that that metamorphosis passes through an endless variety of phases, both in health and disease; but that the transition is often imperceptible, showing the non-essentiality of disease as a separate entity, and proving that, in many cases at least, the same elements go to make up the sum of disease that previously, in a somewhat different order, constituted the normal state of health?

Let us suppose, for instance, that one of the essential features of pneumonia consists in the arrest of the chlorides of the blood in the lungs; physiology instructs us that a certain average of chlorides passes off by the urine in the four-and-twenty hours, and pathology informs us that in an individual labouring under certain symptoms, termed inflammation of the lung tissue, the renal secretion yields a much smaller quantity of this constituent; we conclude that by restoring the secretion of chlorides by the kidneys, we shall relieve the organs of respiration, and promote the restoration of the various disturbed functions to their healthy condition. The practical question, then, comes to be, whether we may or may not rely exclusively upon the natural powers to re-establish the proper balance; whether we are to employ artificial means to aid in its re-establishment, or whether we may trust Nature herself to effect it.

Again, let us take the case of a person wasting under a tubercular disease, in which hectic and colliquative sweats and diarrhoea are sapping the vital powers; we know that the metamorphosis of the tissues is going on, so rapidly that, if left to herself, Nature will speedily wear out that thinning frame,—may we still place our faith in the tendency of disease to overcome its own evil, or in the unaided physiological powers to cast out the demon? or may we come to her aid with such helps as the study of Nature has proved to be conducive to an arrest of that excessive metamorphosis, and thus, if not save life, yet prolong its span? Or, to select a still more striking example, as capable of more positive synthetic and analytical proof:—in metallic poisoning, where all the tissues of the body are impregnated with the metal, and where disease is produced by the presence of the foreign substance in the muscles, the brain, the bones, what results

are certain to occur if Nature, unaided, is required to cure the disturbance of function, the disease, that ensues? Will Nature eliminate the lead that causes the Burtonian line, or does she not rather wait for Art to come in with her sulphur, or her iodide of potassium, to expel the enemy, who had effected so secure a lodgment that she alone would never have mastered him?

These are some of numerous instances that may be already alleged as indicative of the means by which we may rationally aid Nature in the treatment of disease; while especially the last two are brought forward to show that nature, or, in other words, the physiological forces of the system, do not suffice to restore health to the sufferer. We look forward with confidence to the time when the range of Art will be still further increased, and her relation to Nature still more accurately defined. But of one thing we are as certain as Sir John Forbes could desire us to be, that unless, in all our remedial administrations, we consult the laws of physiology, and seek to avail ourselves of the inherent powers of the constitution to remove disease, we shall ever fail to be masters of our art, and shall go about, ourselves blind, seeking to direct the blind: The real question in therapeutics is, what can Nature do unaided?—can she do it in the most expeditious way alone?—does she require some artificial assistance, or is she altogether unable to restore health without the intervention of art? In the above instances we have sought to illustrate some of the ways by which we may assist nature. Undoubtedly, in the majority of diseases, Nature—that is, the physiological processes—tend to remove disease by restoring the natural balance of the powers; in many she does so most expeditiously, if left to herself; in many the processes may be facilitated if we adopt the hints which the balance and the test-tube afford; in some she appears overcome by the noxious influence, and to succumb, unless a powerful antidote be administered, which, by neutralizing the poison, enables the physiological influences again to assert their power, and to restore the balance of health.

We are tempted to place before the reader a formula by which we have sought to make clear to ourselves and to students the various points of view under which we may regard diseased processes, and which has appeared to us to facilitate the *rationale* of our therapeutical applications.

If we represent the normal constituents of the body by a, b, c, d, e , and assume that in health they occupy the relation to one another of $a + b + c + d + e$, disease may be regarded as taking place in one of three ways, which may as readily be represented by an algebraic formula. Either the constituents are simply deranged, and they come to occupy a different mutual relation; or an elision of one or more of the elements may take place; or thirdly, a foreign element may be superadded. In the first case the different forms of disease may be as numerous as the changes that can be effected in the relative position of the elements, and instead of the formula, $a + b + c + d + e$, we may find them in the relation of $a + d + e + b + c$, or of $b + d + c + e + a$, and in many others. It is manifest that, if anywhere in the treatment of disease, this category will probably be the one in which we shall find

the most numerous instances of what Sir John Forbes terms the power of Nature in curing disease,—that is to say, that the interference of medicinal agents will be less necessary, because, by placing the patient in a proper condition as regards noxious influences, by allowing the powers of his constitution to find their proper balance, the derangement of the constituents of health will be rectified. It becomes a question for further inquiry, whether it is not a due and legitimate prerogative of Art to ascertain that Nature is able to achieve certain results, when the conditions are granted, and to grant those conditions. We are willing at once to confess that since our first initiation into the mysteries of medicine we have abhorred the doctrine that our art consisted exclusively in the administration of pills and potions. To return.

Our second category—that in which an elision of one or more of the elements occurs—would be represented thus, $b + c + d + e$, or $a + b + c$, or let E represent the elements in their normal strength and order, the above two instances would stand thus respectively: $E - a$, and $E - (c + d)$. The inquiry to be made in this case in regard to therapeutics would be, whether the powers of Nature would be adequate to restore the deficiency, or whether it would be requisite to supply the element which we found wanting by artificial means, or, in other words, by drugs. There can be no doubt that here again the physician will often do little more than place Nature in a position to work out her own salvation; but at the same time he may, by the judicious administration of the deficient element, materially expedite the process. To take a familiar instance. The blanched lip and the pale tongue of an anæmic patient challenges us to prescribe a salt of iron, because we know that element to be wanting to restore our patient to health. By hygienic means alone, by fresh air, improved diet, and cold sponging, the system may be enabled to take up from the food the necessary iron without medicines; but we all know that either we cannot place our patient in circumstances in which the hygienic means are available, or that the process is very tedious, and will be much expedited by the administration of five grains of the ammonio-citrate of iron three times daily, half-an-hour after meals. Then, naturally, both the patient and the physician agree that the citrate of iron shall be taken.

In our third category we place those forms of disease in which we discover a new element superadded to the normal constituents. This can be nothing else than a poison, which may be of an organic or an inorganic character. The formula here would be $(a + b + c + d + e) + x$ or $+ y$; or, representing the normal elements collectively as E , the formula would stand $E + x$ or $+ y$. The duty of the medical man here would manifestly be first to recognise the presence of the x or y , and then to determine upon its best mode of elimination. The same question arises as was put before. Do the powers of Nature suffice to produce the desired effect, or do they not? No one, we think, will affirm generally that they suffice; while probably every medical man of experience will readily admit that in many instances the unassisted powers of Nature will secure the elimination of the x or the y . But

we claim for the medical man the right to place Nature in the right position to develop her own powers, and we all know that the intervention of the physician for that purpose is often most essential, as Nature does not herself always assert her right to be heard in her own cause. Were it otherwise, probably neither Sir John Forbes' book nor this Review would have been written. On the other hand, it is unnecessary to quote instances in proof of the statement that unaided Nature—i.e., Nature without physic, *sensu strictiore*—is often inadequate to secure the elimination of x or y , and that without the eliminant, x or y will continue to infest our patient's tissues, racking his nerves, exhausting his vigour, turning his muscles into fat. There may be a medium between these two extremes; we may know that Nature will suffice to remove the poison, but we know also that in its passage through the system it will leave an indelible impression, or that much time will be wasted by the process; and we have an agent at hand which will accelerate the movement of the elements, and secure a more rapid evolution of x or y , shall we therefore not employ it because Nature might have carried out the work alone? Not to allow the employment of the drug under such circumstances would be tantamount to a wilful rejection of the boons accorded to us by Him from whom Nature has her source. *Omne simile claudicat*, and a limp may probably be discovered in any and every theory that was ever proposed; therefore we guard ourselves against the charge of representing all diseased actions by the above formulæ. Before concluding this brief exposition, we would merely add, for the benefit of any one who may be tempted to follow out our method more into detail, that the three categories would, even theoretically, necessarily often pass into one another; thus, whether an element were deficient, or a new one superadded, in either case the remaining elements might change places in a manner represented by the first category; or an element might be wanting, while a foreign constituent were superadded; it is clear that by going into a detailed comparison between individual forms of disease and the formulæ, we should often meet with very complex arrangements; these we have at present nothing to do with, as it is not our wish to dilate upon a mathematical representation of disease, but simply to show the point of view in which we regard the various demands made by diseased processes upon the therapeutical interference of medicine.

We think that by the above analysis we have rendered to ourselves more clear what may be expected of Nature in Sir John Forbes' sense, what of Art. Still, before proceeding to a further examination of Sir John's views we would protest against that assumed antithesis being made a ground of accusation against the medical profession at large. Many there undoubtedly are who think that without medicine no disease can be well cured; but we feel satisfied that the great bulk of all educated members of the profession—and, thanks to modern progress, we may hope that that comprises the majority of all its members—consider themselves rather as ministers and interpreters of Nature than as Titans who are engaged in a constant warfare with her various manifestations. That interpretation may often be er-

aneous, but the attempt to discover it argues for the fact that the medical man does not desire to place his art in contrast with Nature. If we are right in assuming these remarks to apply very generally to medical men of the present day, we by no means assert that such tendencies have always prevailed; the fact that they did not prevail some years ago, in this country at least, was proved by the animated opposition which the enlightened views of Sir John (then Dr.) Forbes excited when put forth in 1845, in an article On Homoeopathy, Allopathy, and Young Physic. Twelve years are but a comparatively brief space of time in the development of a nation, or of an important integral part of a nation, yet any one who is conversant with the feelings, and views, and the general state of education of medical men, during the last twenty years, will, we think, bear us out in the opinion that, scientifically and ethically, great onward strides have been made. We cannot but believe that the courageous advocacy by Sir John Forbes of views in much opposed to the prejudices of a large class in the profession, have contributed not a little towards the reformation of the *drugging system*. Most sincerely do we thank him as a benefactor of his profession and of mankind. At the same time we are constrained to admit that we are far from arriving at that goal of certainty which we all desire to attain; and we would willingly enlarge our knowledge of the relative powers of Nature and Art in the cure of disease. Sir John appreciates the difficulties that impede the attainment of this desirable end, but speaks more lightly of them than we think the case justifies.

"The main obstacles . . . lie rather in the circumstances under which the subjects are presented to them than in the subjects themselves. When we have the proper field for investigation before us, there is very little difficulty in obtaining a positive and accurate knowledge of the power possessed by Nature in relieving and curing diseases. The phenomena to be observed are neither very numerous nor very complex; the facts are easily obtained, and the deductions are both facile and sure. All that is requisite to insure a positive and pure result is, in the first place, to take care that no artificial interference disturbs the organic processes going on; and, in the second place, to observe and chronicle progressive events. It is a case of simple observation throughout; no sifting of premises, no elimination of causes, no grouping or balancing of effects being requisite to insure a just conclusion. The just conclusion—the exact valuation or appreciation of the power under examination—is enunciated in the simple fact indicating what has been the issue of the organic processes constituting the disease. The sum total of beneficial modification of the morbid processes, whatever it may be, whether amounting to a complete or an imperfect cure, must be acknowledged to be the exclusive work of Nature; in other words, of the conservative powers inherent in the living body." (p. 25.)

The author admits that there are difficulties in finding the proper field for study; but this we do not regard as so serious a difficulty as the determination of where medicinal interference commences, and where it ceases. All writers on *materia medica* claim baths, hot and cold, as belonging to the *armamentarium medicorum*; the regiminal physician would probably claim them as coming within the pale of regiminal treatment, though we should be inclined to assert that the natural man abhors the cold bath, and only learns to love it by degrees.

The application of ice externally and internally is a powerful remedy, but may belong to either party; poultices to the surface or the mucous membranes (in the shape of mucilaginous beverages) are instances of a similar kind; ripe fruits, raw or cooked, are regiminal, but their acids and neutral salts administered in solution would be cachewed, because they would come to the house by aid of the apothecary's boy. We quote these instances in no spirit of levity, but to show that the question is not in reality so much one to be settled by two opposing parties—the medicinal and the regiminal physicians—but that the inquiry to be prosecuted must and may be carried out contemporaneously by all who are anxious to elevate the science of medicine, and place it on a sure basis. No humane physician would consent to watch the progress of a case of neuralgia under purely regiminal treatment, when he knows that a grain of morphia will arrest the pain and give rest to the sufferer; nor would he allow a patient's health to continue to deteriorate because he did not choose to administer a drachm of the oil of male fern for the removal of tænia which infest his intestine. These, and numerous other instances of a similar character, would have to be eliminated before fixing either the diseases or the drugs which were to form the subject of study. Thus the question necessarily becomes more and more narrowed, and at last we arrive at the conclusion that what we have to investigate is rather how much or how little influence individual drugs are able to exert upon certain diseases than that we declare ourselves followers of this or that banner. When we examine the author's statements with regard to the "instruments of the medical art," we gather that, although so powerful an advocate of an essentially regiminal treatment of disease, he by no means despises or rejects the exhibition of drugs; thus, in speaking of alteratives, he says the class contains some remedies of positive and evident power. He lauds opium and its products, as being "some of the noblest instruments of the medical art," and says that "the class contains a great many other agents of analogous though inferior value." Of *peristaltica* he says that the "class contains only three or four drugs, but they possess a positive power of greater or less extent." Somewhat a class is passed in review of which not something more or less favourable is said; we doubt much whether a physician who believes—may we not say knows?—that he has commanding a remedy of "obvious and admirable power" would refuse to allow his patient all the relief the drug can afford, or that he might test whether the unaided powers of Nature would remove the disease he labours under.

The reader will naturally inquire into the manner in which the author of the book under consideration reconciles the apparent contradiction involved in his all but unlimited faith in the powers of Nature to cure disease, on the one hand, and his laudation of drugs, as exhibited in our last remarks, on the other. We will quote his own words in reply, merely premising that Sir John terms the system he advocates, *Accessory or mild treatment, rational expectancy*.

- "This modification of the indirect physiological method of treating diseases (more especially acute diseases), I regard as at once the most philosophical,

the safest, the surest, and the most successful of all the forms it assumes in practice In the first place, it completely recognises the autocracy of nature in the cure of acute diseases, and proceeds on the principle that it is not only useless, but injurious, to attempt to suppress or greatly to modify the morbid processes by strong measures of a perturbative or exhaustive kind.

"The indications which this mode of treatment seeks to fulfil are chiefly the following:—1st. To place the diseased body in the most favourable circumstances for the development and exercise of its own conservative powers, by the institution of a proper regimen, in the most comprehensive sense of that term. 2nd. To endeavour thereby, or through the use of medicaments, to remove such obstacles to the favourable action of the conservative and restorative powers as may be removable without the risk of checking or injuriously perverting them. 3rd. Applying these measures under a watchful supervision; not to attempt by any vigorous measures to alter the course of the morbid processes so long as they seem to keep within the limit of safety, and when they transgress, or threaten to transgress this limit, only then to endeavour to modify them by such mild measures as, if they fail in doing good, cannot do much harm. 4th. To be on the watch against possible contingencies, which may demand the employment of measures of exceptional activity, whether in the form of regimen or medicine, and, when required, to apply such measures with the necessary vigour." (p. 239.)

So far as this method combats the purely empirical proceedings and the treatment *à la Sangrado* that we all have seen, we most heartily concur with Sir John Forbes, and we think that if he had much familiar intercourse with physicians of less than twenty years' standing, and had the opportunity of judging of their practice, he would find that the prevailing fault is not so much a tendency to trust over much in drugs, as to be sceptical of their utility. There is a scepticism which leaves its holder in a slough of despond—a scepticism which, having no positive basis whatever, vacillates with the wind of public opinion or with the accidents of daily life. The medical man whose knowledge is of a calibre to allow him to become the prey of such scepticism, may be regarded as the most unfortunate man under the sun, for no professional act of his can be attended with any degree of moral satisfaction; he will be inclined to say with Dr. Cayol, "*Les systèmes en médecine sont les idoles auxquelles on sacrifie des victimes humaines.*" But there is another scepticism, which is the characteristic of all men of science, which coexists with the warmest love of his profession and a full faith in the powers of his art, in the heart of the zealous and earnest physician; it is the scepticism which leads him to be suspicious of his own observations and of his deductions, until by repetition and by comparison with the results obtained by others, he has placed his conclusions on the firmest basis upon which a scientific fact can rest. Such is the scepticism which has ever distinguished the most elevated in our ranks,—we think that the general advancement of the profession, and the greater humility which that increased knowledge has brought with it, have spread more generally that form of scepticism which we would uphold as a laudable feature of our times. Still we are also satisfied that while many of the views advocated by Sir John Forbes are in a great measure the views held by the majority of physicians of the present day, we have a more positive knowledge of the extent and limits of the powers of Nature on the

one hand, and of the real uses of drugs on the other, in the cure of morbid states, than has been possessed by our predecessors. If we keep to the path we are pursuing, and continue to seek to interpret Nature correctly in all her phases, making Physiology our main instructors in the manifestations of disease, but not disclaiming any aid obtainable from all the handmaidens of the physician, we shall pass safely through the Scylla and Charybdis of dogmatism and false scepticism. We shall retain our faith in the powers of Nature to cure disease, but we shall no less continue to believe that "the Lord hath created medicines out of the earth, and he that is wise will not abhor them."

In the preceding remarks we have sought rather to indicate the spirit that pervades Sir John Forbes' book than to give our readers a summary of its contents. With its spirit we cordially sympathize, for it is a spirit of earnest hatred of all quackery, of manly affection for the high objects of our common profession. We cannot deny that the author appears to us to underrate the value of medicines, but so long as with us the professional man and the tradesman are blended together, and Government takes quackery under its special protection, so long there will be little risk of drugs falling generally into disrepute; and we may say of Sir John, as of the Man of Ross, that

"E'en his errors leant to virtue's side."

With this reservation, we do not hesitate to repeat that we cordially agree with the author's general views, and recommend his "Legacy" to all medical men who earnestly seek for Truth in the daily practice of their surpassingly interesting profession.

REVIEW II.

Gesammelte Abhandlungen zur wissenschaftlichen Medicin. Von RUDOLPH VIRCHOW, Professor der Pathologischen Anatomie und Physiologie an der Universität zu Würzburg. Mit zahlreichen Holzschnitten und Tafeln.—*Frankfurt am Main.* 1856.

Collected Essays on Scientific Medicine. By RUDOLPH VIRCHOW, Professor of Pathological Anatomy and Physiology at the University of Würzburg. With numerous Woodcuts and Plates.—*Frankfort.* 1856. pp. 1024.

THE founder of the well known 'Archiv für Pathologische Anatomie und Physiologie,' the editor of the newest and most elaborate 'Hand-book of Special Pathology and Therapeutics,' has presented us, in a handsome volume, with a collection of some of those researches by which he has exercised so great an influence on the progress of medical science in Germany, and has gained for himself, in a comparatively short space of time, a very high position among the reformers and promoters of our profession. The volume contains some of the author's earliest contributions, which were scattered through various journals, some of which have ceased to appear, and are not easily to be obtained, while, with a single exception, we find none of those essays which have been published in his 'Archiv.' Virchow's earlier

memoirs are of particular interest, as through them we are enabled to understand more readily the views he has laid down in the 'Hand-book of Special Pathology and Therapeutics,' and are allowed at the same time to perceive the manner in which he advanced step by step. The individual essays are provided with new paragraphs, and notes are added, in which the results of later researches are recorded, and the memoir on the subject of thrombosis and blocking-up of bloodvessels (Virchow's embolia) which has created so much sensation, appears here for the first time in a complete form, the second and greater part having never been published before.

Each treatise bears the stamp of the powerful mind of an original inquirer, who examines his subject in every point of view and by all the means at his disposal; who draws his inferences in a logical manner, influenced as little as possible by existing theories, however long they may have been established, however great the authorities in their support.

We can do little more than give the titles of the greater part of the essays; but we propose to dwell especially and at some length upon those subjects, with which Virchow's name is especially connected.

In the first section the author treats, in a philosophical manner, on the nature of man, on animal life, on medical science, on disease, and on epidemic disease (*Seuche*) in particular. His observations in these paragraphs abound in new ideas and sound criticism. We need only allude to those on pathological systems in general, and on the so-called ontological systems in specie; on cellular pathology, on metastasis and infection.

The second section (pp. 59-165) contains Virchow's principal essays on *fibrin*.

1. *Coagulation of Fibrin*.*—The author agrees with Nasse and other physiologists, who teach that the coagulation of fibrin is effected by the juxtaposition of molecules, which are to be considered as perfectly invisible. The coagulated fibrin is a completely uniform gelatinous substance, which in larger masses appears always homogeneous, while in membrane-like pieces it assumes, by the formation of plaits and wrinkles, a fibrillating aspect. In 1854, the author adds, that in all his subsequent investigations he never met with any form of coagulated fibrin, which could be regarded as of granular appearance. The coagulation of fibrin always commences with a gelatinous stage, in which the fibrin is invariably combined with a certain quantity of serum-water analogous to the water of crystallization. Some fibrin remains in this condition, but in general, after some time, the molecules that were hitherto invisible, approach each other more closely, the fluid between them is squeezed out, contraction—or coagulation, in the stricter sense of the word—takes place. While this process of contraction is advancing, the fibrillating condition becomes more evident, and as the last result of coagulation, the formation of true fibrils cannot be denied. Similar observations may be made on mucus. The gelatinous mucus is completely homogeneous.

* Forster's Neue Notizen, No. 769, Sept. 1845.

but by means of water, acids, or alcohol, coagulation is effected, and true fibrils become visible. Fibrin-like mucus in the act of coagulation alters the appearance of such bodies as may be imbedded in it, by making them oval, oblong, caudate, spindle-shaped, &c. This is particularly well seen in cellular formations of a viscid nature, as colourless blood- and pus-globules, and the addition of acetic acid makes it still more evident.

2. *Physical Qualities of Fibrin.**—Elasticity is considered as one of the most prominent peculiarities of coagulated fibrin; this peculiarity is attributed, as in caoutchouc, to the high degree of attraction between the molecules; its connexion with electric phenomena is denied, as only the dried fibrin exhibits, when heated, positive electricity, a character which it possesses in common with other proteinaceous substances. During the metamorphosis of the thrombus, the elasticity yields first to fragility, then again to toughness, a state which signifies the histogenetic transformation of the fibrinous coagulum into connecting tissue, the chemical transformation into gelatinous tissue. Viscosity, or the faculty of adhering to adjacent objects, is possessed by fresh fibrin only in a small degree. The opaque spots on the pericardium and peritoneum, the semi-cartilaginous plates in the coverings of the lungs, the spleen, the testicles, without adhesion to the opposite parts, may be quoted in favour of this assertion. It must be confessed, however, that the origin of these alterations is not in all cases due to fibrinous deposit from inflammation; but in some, at all events, we find unquestionable layers of fibrin on serous membranes, without agglutination to the other side. Although, however, fresh fibrin is not considered to be of viscous nature, yet it may become so by chemical transmutation within the organism some time after its extravasation; it may further appear to possess this peculiarity when mixed with other viscous substances, as albumen and colourless blood-globules.

3. *Chemical Qualities of Fibrin.†*—In this essay Virchow endeavours, according to his own affirmation, to separate the proved facts from the probabilities and theories which abounded on this subject at that time still more than at present. 1. The common fibrin. Although it is true that blood containing fibrin does not coagulate when mixed with a solution of sulphate or carbonate of soda, yet we are compelled to admit "that the presence of fibrin can be recognised only by its coagulation: the coagulated fibrin in an approximative manner by the general characters of proteinaceous bodies, by its insolubility in water, but principally by its morphological and physical qualities." The fat which occurs in combination with fibrin the author found to be composed of 91.90 per cent. fatty acids, and 8.10 per cent. lime (and soda?), free from cholesterine and seroline. These fatty acids of the fibrin appear analogous to those of the nervous tissue, by their containing nitrogen and phosphorus, by their swelling in water, and by their combination with lime. We may add, that Virchow has lately discovered the existence of a fatty substance, similar to that of the nerves and of fibrin, in the yolk of

* Zeitsch. f. rat. Med., Band v. pp. 213 ss.

† Ibid., Band iv. pp. 262 ss.

the hen's egg, in the corpus luteum of cattle, in the spleen, the lungs, in pus, &c., and applies to this body the name myelin (Markstoff).^{*} The salts of fibrin do not exceed 1 per cent.; they consist of phosphate of lime and a small quantity of phosphate of magnesia, and are intimately incorporated with the proteinaceous substance. Virchow attaches a due importance to the presence of those salts for the process of nutrition, and of ossification in particular. The fibrin and albumen deposited in a certain organ may, according to his view, be so changed, that the proteinaceous substance, after having been transformed into soluble extractive matter or fat, is absorbed and carried to the organs of secretion, while the lime remains. This view gains in probability by the result of Schmidt's researches,[†] who found that the blood of some invertebrate animals contains a combination of albumen with caustic lime and phosphate of lime, which, under the influence of carbonic acid, is decomposed into carbonate of lime, soluble albumen, and phosphate of lime. 2. The *formed fibrin*.—We are assured of the presence of fibrin in the blood, chyle, lymph, humor aqueus of the eye, in exudations, and believe it to exist in the spermatic fluid. Besides this common coagulating fibrin, another variety has been admitted by some, which is supposed to exist already coagulated in definite forms. The existence of this variety is altogether denied by our author, and especially so in the glandular tissue, or in the muscle, except in the fluid plasma surrounding the primitive fibrillæ. The *résumé* of Virchow's researches on this subject is, "that the covering of the blood-globules is formed by a proteinaceous substance similar to fibrin, but that the existence of fibrin in the cellular or fibrous tissues as a constituent of their membranes, or nuclei, or contents, is chemically unproved." 3. Concerning the admission of *different varieties of fibrin* (of the arterial, venous, and inflammatory blood, Magendie and Rokitansky's "pseudo-fibrin," and Mulder's "oxy-protein," &c.), the author observes that he knows only of one kind—namely, the fibrin in the coagulated form.

4. *On the Disintegration of Fibrin*.[‡]—As far as the morphological changes in the breaking down of fibrin are concerned, Virchow agrees in general with Gulliver,[§] but he never found them connected with any formation of new cells, but could discover only the remains of those previously admixed. With reference to the chemical processes, he observed the development of hydrosulphuric acid, ammonia, butyric acid, and a solution in some respects similar to albumen, but differing from it by the peculiar change of colour which it shows under the influence of nitric acid, gradually added, and which most resembles the erythroprotid of Mulder.

5. *On the Origin of Fibrin and the Cause of its Coagulation in Animal Fluids*.—In this section we meet first with the question on the pre-existence of fibrin in coagulating fluids. From his own researches and those of others, Virchow is led to the inference:

* Archiv f. Path. Anatomie, Band vi. p. 562.

† Zur vergleichenden Physiologie der wirbellosen Thiere. 1845.

‡ Zeitsch. f. rat. Med., Band v. p. 228.

§ On the Softening of Coagulated Fibrin: Medico-Chirurgical Transactions. 1839

"That in none of the animal fluids perfect fibrin pre-exists as such; but that both the blood, as also the lymph and lymphatic fluid, contain a substance nearly allied to it—that of the former more, that of the latter less so; which substances, by the contact of oxygen, become sooner or later transformed into real fibrin, and then coagulate." (p. 133.)

With regard to the origin of this fibrin-producing material (Virchow's fibrinogenous substance), he considers it to be a product of the metamorphosis of tissue, and especially those structures which are more intimately connected with the lymphatic system (lymphatic glands, spleen, and particularly the connecting tissue). In these structures, and not in the blood itself, the fibrinogenous substance is formed. From thence it passes as well into the exudations as also into the lymph, being so to say washed out by the fluids transuding from the blood. According as, sooner or later, it comes in contact with oxygen or fluids rich in oxygen, it is sooner or later transformed into coagulable fibrin, the coagulation of which may take place within the tissue itself, within exudations, within lymph or bloodvessels. This however is a morbid process, for in health the fibrinogenous substance immediately undergoes another change, and is further decomposed. (p. 137.) It will be seen from this passage, that Virchow places the origin of fibrin not in the blood, but in the tissues themselves, a view which is not proved, but which at all events appears to simplify the mechanism of fibrinous exudations. Thus, the tissue in the state of irritation need not attract the fibrin from the blood in the capillaries, analogous to the secreting cells of some glands, nor need we suppose the coats of the capillaries to become more permeable by the irritation. In the normal state of things the fibrin-producing substance formed in the tissues would be absorbed by the lymph-vessels; but in some inflammatory conditions the surplus of fibrin, thus formed, would become accumulated within the tissues, or transude beyond their surface. The lymph, the blood, the exuded fluids, would in such cases become richer in the fibrinogenous material, and the fibrinous crisis (*Hyperinosis*) would be considered as well a product of inflammation as the exudation itself.

The third section is occupied by the author's essays on *Colourless Blood-Corpuscles and Leukæmia*. He published his first case on *white blood* in November, 1845.* Tumours of the spleen, œdema of the extremities, cough, diarrhœa, epistaxis, furunculoid and pustulous eruptions, and predominance of the white blood-globules, were the principal symptoms. Already at that time Virchow made some remarks which show that he understood his case, and did not confound it with pyæmia, as Bennett, Rokitsky, and other observers had done. † He quotes another case published a short time before in Vienna as pyæmia, ‡ and vindicates it as one of leukæmia.

The essay *On White Blood and Tumours of the Spleen*‡ was written after the author had read Bennett's publication. The circumstance that the latter considers the change in the blood of a pyæmic nature,

* *Froriep's Neue Notizen*, No. 780. Nov. 1845.

† *Zeitsch. der k. k. Gesell. der Aerzte zu Wien*, vol. ii. p. 488. 1845.

‡ *Med. Zeitung*, Nos. 34-36. Aug. and Sept. 1846.

leads Virchow to the discussion on the subject of pyæmia. The latter maintains that there does not exist a distinct difference between the colourless globules of the blood and the pus-globules. He attributes the confusion on the subject of pus in the blood to the croneous assumption that the so-called lymph-globules of the blood are identical with those of the lymph, and derived as such from the chyle; to the imperfect knowledge of the different stages of development of the white blood-globules; to the neglect of the influence of the media on the appearance of the globules; finally, to the assumption of a certain normal pus (pus bonum et laudabile), which has served as a measure for all other cellular elements, again without paying attention to the different phases of the pus-globule itself.

"There are cells," the author says, "which are characterized by the existence of several nuclei. These cells are most frequently met with in pus, hence they have been called pus-corpuscles. But they exist also in the lymph and in the blood; they are found among the epithelial cells of serous membranes, in the younger layers of the epidermis, &c. It was therefore wrong to call them pus-corpuscles. . . . The pus-cell is formed in the exudation-plasma, as the chyle-cells; and probably also the colourless blood-cells are found in the chyle- and blood-plasma. The law of development is the same for the pus-cell and the colourless blood-cell; both are relatively embryonic cells, which differ in so far as the former may become developed into connecting tissue (*Binde-substanz*), the latter into red blood-globules. If, therefore, we find cells with several nuclei in the blood, we must consider them as the foundation for new tissue elements of the blood, no matter whether they are in conditions favourable for further development, or whether they have become obnoxious to the laws of retrogressive metamorphosis, before having reached their normal state of development. There is no cause for calling them pus-globules, but we may designate them colourless blood-globules, as the red globules form their highest development." (pp. 167, 168.)

It is well known that, several years after the publication of this essay, Lebert and Sedillot* have again adduced various points by which pus and colourless blood-globules are to be distinguished. Thus they maintain that the former are larger ($\frac{1}{10}$ to $\frac{1}{8}$ millimetre) than the latter ($\frac{1}{20}$ to $\frac{1}{10}$ millimetre); that the former are more yellowish, the latter white; the former spheroidal, the latter slightly lenticular; that the surface of the former is granular, mulberry-like, of the latter more smooth; that the former possess nuclei (of $\frac{1}{30}$ to $\frac{1}{20}$ millimetre) with a cup-shaped impression, the latter very small nuclei ($\frac{1}{60}$ to $\frac{1}{30}$ millimetre), almost like nucleoli, or ~~not~~ granules. Although we admit the correctness of the majority of these points, when we compare the usual white blood-globules with the well-developed genuine pus-globules, yet we constantly meet with pus-globules that have all the characters just ascribed to the white blood-globules, and *vice versa*. If we further take into consideration, that both kinds of globules exhibit in the same individual important changes, according to their stage of development; that pus-globules, when mixed with blood (i.e., a more concentrated fluid), undergo, according to the laws of exosmosis and endosmosis, very marked alterations in shape (by becoming smaller, smoother, &c.), we cannot hesitate to assert that,

* De l'Infection Purulente ou Pyoémie. 1842.*

with rare exceptions, the presence of pus in the blood must remain unproved, and especially so in the cases of white blood where no source for the purulent infection could be found.

Virchow therefore denied the pyæmic nature of the cases published in Edinburgh, and "vindicated for the colourless blood-globules a place in pathology."

In another article,* nine cases of pus-like blood, observed by Bichat, Velpeau, Oppolzer, and others, are examined, and the probability of their having been cases of white blood explained. Among the circumstances which appear to lead to an increased number of white globules, we find particularly mentioned—*a*, loss of blood (Nasse,† Remak,‡ Henle§); *b*, chronic exhausting diseases (Gulliver's pus-globules); *c*, serious acute diseases, especially typhus, pneumonia, puerperal fever (Nasse). To the viscosity of these globules, already mentioned by Nasse and others, their motion along the walls of the capillaries is ascribed, as well as the fact that in retardation of the circulation they stagnate sooner than the red globules—a circumstance which has led to the idea of a new formation (E. H. Weber, Rokitsky). Piörny's mistake (Hæmatitis) regarding the explanation of a buffy coat, granular and uneven on its lower surface, which is sometimes seen in such conditions, is corrected. In the paragraph on the relation of the spleen to white blood, the author ascribes the function of sanguification, not to the spleen alone, but also to the lymphatic glands, thymus and thyroid, and liver (E. H. Weber and Kölliker). The splenic bodies are considered as closed capsules with a very minute ramification of vessels on their surface; their arrangement is compared with that of the placenta, where diffusion takes place between two fluids, separated from each other only by a permeable membrane. Similar may be the process in the convoluted glands. If the fluid passing from the glands into the blood exerts an influence on the transformation of the colourless into red globules, it is evident that morbid affections of these glands must be of the greatest importance for the development of the blood.

In a new chapter, *Die Leukämie*, the author alludes to the history of the development of our knowledge on this subject, and especially to the contested point of priority between Bennett and himself. Every impartial observer will admit that our thanks are due to both authors. Bennett has done much by the excellent cases he has published, and by the observations attached to them, as also by drawing the attention of others to this affection; but we cannot deny that to Virchow belongs the particular merit of having been the first who understood its real nature. Bichat, Velpeau, Oppolzer, and others, had published cases which, in all probability, belong to the same category; but they had not perceived their true bearing; nobody will therefore attribute to them the priority. Such was also the case with Bennett before Virchow's publication had appeared, although his observations had

* Med. Zeitung. Jan. 3 & 4, 1847.

† Untersuchungen zur Physiol. und Pathol. 1839.

‡ Med. Zeit. der Vereins f. Heilkunde in Preussen, No. 27. 1841.

§ Zeit. f. rat. Med. 1844.

already been much more accurate and valuable than those of his predecessors. We should scarcely have entered into this question of priority did we not consider it justice to do so, as we find, in an excellent handbook of pathological anatomy touching on the subject of Leucocythemia, Virchow's name altogether omitted. §

In reference to the name, Virchow is not inclined to sacrifice his "Leukæmia" to Bennett's "Leucocythemia;" he is of opinion that it would be more proper to apply the expression "Leucocythemia," or rather "Polyleucocythemia," to those states in which the white globules are physiologically (digestion, pregnancy) or pathologically (most inflammatory and typhous affections) increased, but only for a limited period; this polyleucocythemia exhibiting as great a difference from real leukæmia as chlorosis from the anæmia of carcinomatous patients. Leukæmia does not merely signify a state characterized by an increased number of white globules, but "an altered development of the tissue of the blood in its dependence on certain organs." There is, in reality, a less perfect colouration of the blood. Several observers (Uhle,* Griesinger,† De Pury,‡ among the latest) have made the observation, that the quantity of colourless globules is in some parts of the body much larger than in others; as in the splenic vein, which may be explained by a greater destruction of red globules within the tissue of the spleen, or also by increased formation of colourless globules in that organ. The accumulation of white elements in the vena cava and right side of the heart is attributed to the posthumous movements of the vessels during and after death, and to the inosculation of the thoracic duct, whose movements do not cease for several hours after death. The large proportion of white globules in the small vessels of the brain, as first pointed out by Bennett, has been repeatedly confirmed by Virchow; and we had the opportunity of observing it ourselves in two cases, as well in the brain as also in the lungs, the liver, and the kidneys.

The circumstances that, in some patients, the affection of the lymphatic glands prevails over that of the spleen, and *vice versa*, that in the former cases the elements of the lymphatic glands (*viz.*, "innumerable round granulated nuclei, generally provided with nucleoli, of the size of the usual nuclei of the lymphatic glands, here and there also cells consisting of such a nucleus surrounded by a membrane rather closely attached to it") predominate in the blood; in the latter those corresponding to the elements of the spleen;—these circumstances lead Virchow to establish two varieties of leukæmia, the lymphæmia and splenæmia. In a case observed by ourselves, where the lymphatic glands were enormously diseased, while the spleen was almost normal, we met certainly with many of the above-described lymphatic elements in the blood, but with still more of the larger white globules which are attributed to the splenic variety. Scherer's qualitative analysis of the blood, in a case of the splenic variety, has exhibited, besides lactic, acetic, and formic acid, gelatin, a peculiar organic body, and 0.4—0.6 per cent. of hypoxanthin. The presence of the latter substance is of

* Archiv f. Path. Anat., vol. v.

† Ibid.

‡ Ibid., vol. viii.

But while we value this portion of Dr. Stokes' remarks on treatment, and that which applies to general blood-letting and calomel, we own that we are surprised to find that his treatment is really heroic:—leeches in relays of from twenty to thirty, gradually reducing the number on each application—two or three applications in the day—and doses of calomel of from ten to twenty grains! Surely the exhaustion to the system caused by such a plan is a real and serious evil, not less deplorable than the problematical evil so much dreaded. Seeing the great weight that rightly attaches to any plan of treatment recommended by our author, we would protest all the more strongly against these ill-advised measures. We are the more surprised that Dr. Stokes should recommend this plan, since we find, at p. 47, the following passage:

"The treatment consisted in the exhibition of opium in large doses, as recommended by Dr. Corrigan, and succeeded admirably, none of the deleterious effects of the drug having been produced."

This relates to a patient treated by Dr. Graves, whose plan of leeching and calomelization is that so profusely enforced by our author. If we turn to Dr. Graves' own account of the case in question, we find that the opium, in doses of one grain every third hour, seemed to expend itself solely on the disease; for during the whole time she was taking it, it never produced contraction of the pupil, headache, hot skin, furred tongue, or constipation.* In this case, the mouth had been made sure, and a blister applied. In our own experience, we find that opium in such cases seems "to expend itself solely on the disease." The great value of this plan of treatment is, that the patient has a short convalescence, and, provided the endocardium escape, returns almost at once to the previous standard of health. In the early stages, it is advisable to apply a few leeches, and perhaps to conjoin calomel with the opium for one or two doses, treating, at the same time, the disease that lies at the root of the attack, on its own grounds. Pericarditis from acute rheumatism necessarily calls for a totally different line of treatment from that associated with Bright's disease, or diffused inflammation of a low type. One of the most important considerations in the treatment of pericarditis is the stage of the disease during which we detect it for the first time. It should never be forgotten that in pericarditis, as in pleuritis, the loudness of the friction sounds, and harshness of the tactile vibrations, are far from being in relation to the intensity of the disease—since, when the tide of the affection has turned, and the effusion is disappearing, the roughened surfaces, bearing the exuded but passive products of the earlier stages, come into closer and more diffused contact, and increase the extent and harshness of the rubbing noise, which then often bears an inverse ratio to the severity of the disease. If, under these circumstances, when the disease is of itself dying out, active measures be employed, the effect may be most disastrous.

Pericardial Adhesions.—Dr. Stokes remarks that—

"From our general knowledge of the history of serious inflammations, we must conclude that resolution without adhesion must be of very rare occurrence in pericarditis; and, consequently, it is fair to infer that, in most of the cured cases of the disease, an adhesion has really taken place."

We take exception to this inference, which is quite unsupported by

* *Clinical Medicine*, vol. II. p. 151.

proofs, and is opposed to the general evidence. The very frequent occurrence of white patches on the surface of the heart, which are proved by Mr. Paget to be the result of pericarditis, shows that adhesions are not even the usual result of that disease. Mr. Paget discovered signs of old or recent pericarditis in 58 out of 110 bodies examined by him after death; in 4 only were there complete adhesions.* Dr. Kicke's later observations confirm those of Mr. Paget.†

Dr. Stokes says, very justly—

"Without denying that a general adhesion may induce hypertrophy and dilatation, experience leads me to doubt that such an effect necessarily, or even commonly, follows the condition indicated. . . . It is in those cases of pericarditis which we have before indicated, and when valvular disease is either co-existent with, or subsequent to, the first inflammation of the sac, that hypertrophy and dilatation appear as remote consequences of pericarditis. In the cases of recovery without murmur, we have little apprehension of the after-occurrence of organic disease. . . . Where alteration of the muscular condition of the heart is found in connexion with this obliteration, it is not necessarily a state of hypertrophy, but is often one of an opposite nature." (pp. 11, 12.)

These remarks corroborate our own observations in the 'Provincial Med. Trans.' for 1844. We there, after figuring three cases of adherent and greatly enlarged heart, cite four cases of loosely-adherent hearts, of normal size, that were free from valvular disease, and from any heart-disturbance during life. We also state, that—

"If the adhesions be dense, strong, and contracted, and unaccompanied by valvular disease, they often gradually lessen the bulk of the heart's cavities, and impede their expansion. A case of universal strong girdling pericardial adhesions, preventing the expansion of the cavities, the valves being healthy, and the heart weighing only 6½ oz., presented the following symptoms: The heart's region of superficial dullness, impulse and sounds normal; pulse very feeble; palpitation, dyspnoea, and anasarca; lips blue."

Lancisi, Laubius and Garnerus, and Dr. Waugh, give each one case in which the pericardium was adherent and the heart small.

Dr. Chevers, in the seventh volume of the 'Guy's Hospital Reports,' gives four cases of firm pericardial adhesions, in which the heart was unusually small; in one of these there was also disease of the valves; at least two of the cases were in perfect health during life. Dr. Barlow, in his 'Gulstonian Lectures' for 1844, gives two cases of pericardial adhesions without marked valvular disease, in which there was hypertrophy and dilatation of the heart, especially of the right ventricle; and one case in which a ring of ossification surrounded the heart, and in which there was atrophy of the organ. Dr. W. T. Gairdner, Professor Smith, and other observers, have amply proved the truth of the above position as laid down by Dr. Stokes.

* Bonac and Corvisart considered that pericardial adhesions, unless partial or loose, prove very injurious to the action of the heart; while Laennec and Bertin thought adhesions usually by no means formidable.

When the friction sounds disappear gradually, from the apex to the base, as our author states, the diagnosis of an adhesion of the pericardium, more or less complete, can be easily made. He doubts, however, whether there is any certain physical sign of adhesion of the pericardium.

* *Medico-Chirurgical Transactions*, vol. xxiii.

† *Transactions of the Abernethian Society*, vol. III.

better manner than by giving Virchow's own words regarding the nature of these mysterious bodies :

"I therefore must still maintain the view which I have repeatedly brought forward, that the colourless blood-globules which we find circulating in the blood are simple cells, without a specific character, whose transformation into red globules cannot take place; that they therefore form a relatively superfluous constituent of the blood—a kind of excess, or waste. The transformation of lymph-globules into red blood-globules takes place much sooner, and it appears that if a certain cell, when passing into the blood, has transgressed that stage of development, it is unfit to undergo its specific coloured metamorphosis. It then circulates for some time, and perishes finally by retrogressive metamorphosis. Thus it may be easily conceived that the larger the number of colourless globules in the blood the smaller is the amount of red cells." (p. 218.)

The fourth section, occupying one-half of the whole volume, contains the essays on Thrombosis and Embolia, and on Inflammation of Vessels and Septic Infection. (pp. 219-732.) These are also subjects on which our knowledge has been considerably enlarged, and in some respects corrected, by Virchow's labours. Many cases of obstruction of arteries and coagulation of blood within the vessels had been published, but insufficiently interpreted, when Paget's excellent memoirs, 'On Obstruction of the Pulmonary Arteries,' appeared in 1844 and 1845. Almost at the same time we received an essay by Bonchut, touching the spontaneous coagulation of blood in the vessels in cachectic states and in chronic diseases. To Virchow, however, the merit is due, not only of having explained that many of the cases of obstruction of the pulmonary arteries are the effect of the lodgment of fibrinous plugs, carried there from a distance, and having pointed out the places where, and the circumstances under which, the primary fibrinous coagula are formed, but to him also we must accord the priority in the question of the obturation of the systemic arteries in consequence of the detachment of solid substances from the valves of the left ventricle, &c. (1845.) After we meet with the publications of Pioch, Meinel, Doederlein, Rühle, Kirkes, Tufnell, Klinger, Simpson, &c., some of which have evidently been written without the knowledge of our author's researches, as Pioch's 'Cas de Gangrène partielle du Pied, attribué à un Caillot Détaché du Cœur ;' and, above all, Kirkes' masterly essay 'On some of the Principal Effects resulting from the Detachment of Fibrinous Deposits from the Interior of the Heart, and their Mixture with the Circulating Blood.'†

In his first publication, On the Obturation of the Pulmonary Artery,‡ Virchow distinguishes *primary* and *secondary* obturation. In the primary form the obstruction commences in the artery, the alteration of the parenchyma being the consequence; in the secondary form the alteration of the parenchyma causes the obstruction. Many cases of obliteration of branches of the pulmonary artery in tuberculosis and pneumonia are attributed to the secondary obturation, but a large

* Gazette Médicale. Août, 1847.

† Med.-Chir. Trans., 1852.

‡ Frerich's Neue Notizen, No. 794. 1846.

number of obturations are of a primary nature, and concerning these Virchow long since said :

"These plugs have been formed in some part of the vascular system, situated in the circulation anterior to the lungs—i.e., either in the veins or in the right side of the heart; and have been carried by the blood into the pulmonary artery." (p. 224.)

In proof of this, he adduces : 1. That plugs are met with in the venous system. 2. The plugs fill, when fresh, the whole lumen of the artery; they adhere only loosely to the walls, which exhibit no alteration; when old they adhere only to one side of the vessel. 3. The plugs do not usually commence from the capillaries, but extend only to the division of a larger branch, riding frequently on the bifurcation. 4. The age and condition of the plug are in general similar to those formed in the plug of the veins. 5. The thrombus of the vein, in which the blood is coagulated, extends some distance beyond the inosculation into the larger vein, which is still capable of carrying on the circulation. This prolongation of the plug takes place in the direction towards the heart, along the wall of the vein, where the plugged branch enters; thus the circumstances are given which are most favourable to the softening of the plug, a part of which may then break off and be carried away by the stream of the blood. This view gains strength by the irregular step-like appearance of the termination of the prolonged venous plug.

*Further Researches concerning the Obturation of the Pulmonary Artery and its Consequences.**—The author's experiments on animals show that the venous stream of blood is able to carry off bodies of greater specific gravity than the venous blood through the right heart into the pulmonary artery; that the contact of these bodies with the internal surface of the heart does not cause any marked symptoms; that the plugs either ride on bifurcations or pass some distance into a branch; a consecutive coagulation of blood takes place before the plug, and another coagulation around it, if any space is left between its edges and the walls; but the walls of the artery behind the plug collapse if the lumen is completely obturated by the plug. The view of Rokitsansky and older French pathologists regarding the spontaneous coagulation of the blood in the pulmonary arteries, in consequence of the admixture of products of inflammation to the blood, is rejected. Due justice is done to Paget's merits on this subject, but his hypothesis, that the presence of urea in the blood may increase the adhesion between bloodvessels and blood, and thus lead to spontaneous coagulation in the pulmonary arteries, is considered as still unproved. Retardation (or complete stoppage) of the circulation appears to be the principal condition favouring the coagulation of the blood within the vessels, while relative or absolute increase of fibrin is considered as of secondary importance. Retardation to such a degree as to lead to spontaneous coagulation is, however, almost only met with in the venous system—very rarely in the arteries either of the body or of the lungs; it is therefore, also, *à priori*, not likely that we should meet with spontaneous coagulation in the pulmonary arteries.

* This first appeared in Traube's Beiträge zur Experiment. Pathologie und Physiologie, Heft 2. Berl. 1846.

"The cases of obstruction of the arteries of the body by fibrinous plugs, cannot (he then already said) be adduced in proof of the just-refuted hypothesis, as they are likewise to be explained by blocking up through substances transported there from the left ventricle."

In order to elucidate the consequence of the mere obturation without complication, Virchow performed a series of experiments on dogs, which he relates under the following heads:—*a*, Introduction of animal substances into the jugular vein (fibrinous coagula, plugs taken from veins, pieces of muscle). *b*, Of pieces of the pith from the elder tree. *c*, Pieces of caoutchouc.

The results of these experiments show, that up to a certain period the consecutive alterations are similar in all cases of obturation, but that important differences are seen in the later development. In all cases we observe, first, coagulation of blood in the vessel round the plug, as already mentioned; later, inflammation of the coats of the artery, manifested by changes in the wall itself, without exudation into the cavity of the vessel. From this point great differences commence, no further alterations being witnessed after the intromission of the caoutchouc plugs, while the substances under *a* and *b* cause violent pneumonia, terminating either in suppuration or necrosis, pleuritis with extravasation into the parenchyma of the pleura, and abundant serous and hæmorrhagic effusion into the cavity, with predominant tendency to ichorous metamorphosis; the pleura over the affected part of the lung became necrotic, and by bursting, led to pneumothorax. The whole series of these phenomena developed itself in one case within less than five days.

We may infer from these results that the local affections following the obturation depend only to a small degree on the plugging up itself, but much more on the chemical and mechanical nature of the plug. The circumstance that the pulmonary tissue, after the complete obturation of the artery of an entire lobe, remains unaltered, corroborates the view that the bronchial artery is the nutritive vessel of the lung. Virchow's experiments further show the formation of a distinct collateral circulation through the bronchial and intercostal arteries after the obturation of the pulmonary artery. A very important experiment, in which a large number of pieces of muscle was introduced, exhibits the occurrence of death with all the symptoms of asphyxia, the heart having been found in the diastolic state. The ingestion of air acts likewise by the impediment it originates to the circulation through the lungs. Here, too, the heart is found in the diastolic state, as, in the whole, the most different forms of asphyxia produce paralysis of the heart, which again appears to be the effect of the regurgitation of the blood into the coronary arteries, through its accumulation in the right ventricle. The tetanic stretching of the voluntary muscles, the retardation of the respiration, the dilatation of the pupils, the protrusion of the eyes, &c., are the immediate consequences. Some of the author's experiments exhibit also very clearly the subsequent metamorphosis of the thrombi: 1, the organization, by vascularization and canaliculization; 2, the formation of detritus by simple softening or putrid deliquescence.

Regarding the secondary disturbances in man, the author shows that here, too, the greatest differences are met with, according to the size and nature of the obturating substance. Smaller obstructions remain probably without any urgent symptoms, as Paget had already mentioned; the fibrinous plugs become in general organized into cellular tissue, which sometimes contains vessels (usually also pigment), and adheres to the internal surface of the vessel. Sometimes they undergo the sinus-like degeneration. Larger thrombi exhibit symptoms that may at first more or less resemble syncope, but later assume the character of asphyxia. Thus we find in Case 8 the occurrence of several attacks marked by feelings of anxiety, by oppression, moaning, feeble pulse, coldness of the extremities, cold perspiration, at last death, with stretching of limbs, turning of eyes, jerking motion of thorax, and sighing.

*On Acute Arteritis** (pp. 380-450).* — In this chapter Virchow examines the results of the observations and experiments of other observers (Sasse, Bouillaud, Rigot and Troussseau, and Gendrin), from which no positive inferences can be drawn, and then relates thirteen experiments of his own, made on dogs. From these the author concludes: 1. That no exudation takes place on the free surface of the interior membrane of arteries. 2. That two circumstances may have led to an erroneous, opposite view on the subject—namely, the overlooking of the small collateral branches by which blood is conveyed into the empty artery, and the rupture of the internal membrane by which exudations collected between the coats may enter into the cavity of the vessels. 3. That necrosis of the arterial coats causes coagulation of the blood in the affected part. 4. Chemical and mechanical irritation causes inflammation of the external and middle layers of the coats of vessels. The alterations of the internal membrane are of a secondary and passive nature. 5. The phenomena of inflammation of the external and middle layers are entirely analogous to the common phenomena of parenchymatous inflammations. The fibrinous coagula in the cavity of arteries are therefore not to be considered as the products of exudation from the lining membrane, but as caused by coagulation of the blood. These coagulations may be considered under three heads: *a*, those only attached to the wall, and thus effecting a diminution of the lumen, occasioned either by local retardation of the circulation, or by roughness of the wall, or by a combination of both circumstances; *b*, locally obliterating coagula, induced either by the preceding variety, through further coagulation of the blood, or by coarctation of the lumen, acting like a ligature, or by plugs detached from another point and carried by the circulation to the place of obturation. The proof for the embolic nature of an arterial obturation may be found in the locality of the coagulum, in the multiplicity of the coagula, in the co-existence of analogous bodies in the centre of the obturating coagulum, and on distant points of the arterial system, in the suddenness of the appearance of the phenomena, and in their constancy, in the condition of the arterial walls, and in the conformation of the secondary coagula round the embolus. A

* Archiv f. Path. Anat. und Phys., Band i. p. 272.

series of cases explain the author's propositions. The symptoms manifested during life depend on the ischæmia* of the part provided by the obturated artery, combined with collateral fluxion; they must therefore vary with the locality, the size, and nature of the embolus. The paleness, coldness, and loss of turgor may be so intense as to justify Cruveilhier's term "cadaverisation." Amongst the functional disturbances of the extremities, the neuralgia stands foremost; hyperæsthesia, paræsthesia, anæsthesia, and paralysis, are likewise met with. Plugging of the cerebral arteries may produce the well-known symptoms of tying of the carotids. Soon the ischæmic symptoms become mixed with those produced by the collateral circulation, frequently leading to hyperæmia and its consequences—sometimes even to inflammation. In most instances, however, these secondary changes appear to belong to the retrogressive metamorphosis, or are of the necrotic nature. Thus we meet with softening of the brain (already compared by Rostan with senile gangrene), instances of which we have also in the cases of Rühle, Kirkes, and others.

c. Generally obturating coagula are combined only with necrotic processes. The coagulation in all the arteries of a certain district points to impediments of the circulation, and particularly of the capillary circulation. The impossibility of the entrance of blood into the capillaries acts like a ligature on the arteries; coagulation in the direction towards the heart is the necessary consequence. Thus the hæmorrhagic infarctus may cause coagulation in the arteries of the district, and at the same time necrosis of the part itself, by depriving it of its nutriment. Concerning the connexion of gangrene with the obturation of arteries, Virchow sums up his observations in the following manner:

"Obturation of arteries may produce, but does not always produce, gangrene; gangrene may occasion obturation of arteries, but does not always occasion it; gangrene and obturation may be, but are not necessarily, joint effects of the same cause." (p. 450.)

Obturation of the Mesenteric Artery by an Immigrated Plug† (pp. 456-58).—Of particular interest in this case is the hyperæmia, and even fibrinous exudation in the parts supplied by the obturated artery. Virchow appears inclined to attribute this circumstance to the impaired nutrition of the vessels, which, according to this view, would be more easily distended, and even ruptured by collateral influx of blood.

Phlogosis and Thrombosis in the Vascular System (pp. 458-636).—In the essay on acute arteritis, the author was led, as we have seen, to the inference that the processes within the cavity of the vessels depend on thrombosis or coagulation, while the primary phenomena of inflammation are confined to the walls. Inflammatory, Virchow calls those active pathological processes which proceed from irritation, therefore the irritative disturbances of nutrition. Such pathological

* *Ischæmia*, a term formerly employed by Peter Frank, is applied by Virchow to states of local arterial anæmia, in which the blood is prevented from flowing into those parts for which it is destined. (p. 504)

† *Verhandl. der Würzburg Gesellschaft.*, Band iv. p. 341.

processes he describes: *a*, in the sheaths of the vessels (periarteriitis and periphlebitis), leading to suppuration, to callosities, &c.; *b*, in the middle layers (mesarteriitis, mesophlebitis); *c*, in the internal membrane (endarteriitis and endophlebitis). Regarding this internal membrane, it will be remembered that the author, in his earlier publications, considered its alterations by irritation as of secondary and passive nature. At present, he still looks upon it as a kind of barrier against the changes of the middle coat in the acute forms of inflammation, yet he attributes to it also in these forms certain parenchymatous alterations; but much more important are the alterations in the chronic inflammation. He agrees with those pathologists (Bizot, Rayer, Tiedemann, Engel, Dittrich, and others), who derive those gelatinous and so-called semi-cartilaginous layers of the membranes of arteries from a chronic inflammatory process, as well as also those calcareous and fatty deposits, and the superficial ulcerations.

"It is of an inflammatory nature," he says, "as the endocarditis, with which it is frequently in direct connexion, and as the so-called *malum senile articulorum*, the *arthritis sicca s. villosa* of some later authors; or as Burns proposed, the *arthritis deformans*. It may very well be named *endarteriitis deformans s. nodosa*."

The author, however, urges the necessity of distinguishing from the inflammatory atheromatous process simple fatty degeneration, which may take place as well in the heart as in all the membranes of the vascular system, and is so well described by Paget, and later by Moosher,* with respect to the capillaries of the brain. The atheromatous processes have their origin in the parenchymatous inflammation of the internal membrane. They commence in general with a slight swelling of the lining membrane (most distinct on the valves of the heart, the aorta and pulmonary artery), either in patches or in a more diffuse manner; the affected parts contain more fluid substance, by which the whole tissue may have a gelatinous appearance (the gelatinous or albuminous exudations of Bizot, Engel, Lebert, and others). Virchow is of opinion that this increase of substance is partly due to imbibition from the blood (analogy with tissues unprovided with vessels), but he proves, besides water, albumen, &c., the presence of another substance similar in reaction and microscopic aspect to fluid mucus, with many small round cells, often in the process of subdivision, and some larger ones spindle-shaped. The change consists, therefore, not merely in imbibition, but in a morbidly increased metamorphosis with new formation, a species of hyperplasia. At the same time the fibres of the original tissue are frequently seen thickened, the cells enlarged with filiform ramifications, &c. Besides the gelatinous swellings, we meet often with harder "semicartilaginous" spots, which may be the product of a further alteration of the former (Lobstein's arteriosclerosis). The sclerotic patches usually undergo the atheromatous process; while the gelatinous swellings pass likewise through the medium of fatty metamorphosis, but terminate in softening and superficial ulcerations (*fettige Usur*); the latter is most distinctly seen in the pulmonary artery, the formation of the atheroma in the aorta.

* Ueber der Pathol. Verhalten der Kleinen Hirngefässe. Würzburg, 1854.

The calcification, which sometimes takes place in the semicartilaginous patches, is regarded as real ossification, on account of the analogous transformation of the cellular elements. Regarding the etiology, Virchow does not follow Bichat and Rokitsky in ascribing any importance to the arteriality of the blood, but attributes the principal influence to mechanical moments (Rayer, Dittrich), without, however, altogether denying the existence of a dyscratic predisposing condition. The occurrence also of a chronic endophlebitis is another weight against the view that the arterial quality of the blood is the cause of the alterations in the lining membrane of the arteries; the endophlebitis is, however, of rarer occurrence, and terminates less frequently in atheroma than in ossification.

In endocarditis, too, the mechanical moments are of great influence, as Hope has already explained. On the endocardium, as on the lining membranes of the arteries, the phenomena of merely retrogressive metamorphosis are not to be mistaken for those dependent on inflammation. The latter are analogous to those met with in the arteries and veins; here again we meet at first with the small gelatinous thickenings, principally towards the free edge of the valves; later only these are changed into more tense or semicartilaginous masses, which in a still later period may undergo the fatty (atheromatous) metamorphosis or ossification. The endocarditis, however, runs a more acute course, on account perhaps of the larger number of vessels, and the looser cellular tissue beneath the endocardium; through this medium there is here a greater tendency to the formation of warty excrescences, which may give rise to the deposition of fibrinous coagula from the blood, the origin of which is of course altogether different.

Concerning the composition of the thrombus, it differs from a simple blood coagulum by its distinctly stratiform construction, by its larger per centage of fibrin, by containing a greater number of colourless blood globules. With regard to the circumstances under which a thrombus is formed, we find that retardation of the circulation is the condition which is common to all varieties of thrombosis; but how, in the retarded or stagnating blood, the change in the "fibrinogenous substance" is effected, without which the coagulation does not take place, is a further question which had not yet been answered to the author's satisfaction. Malherbe's theory of the superfibrination of the blood, Vogel's hypothesis of the inopexia (i.e., increased coagulability of the fibrin), Paget's view regarding the influence of urea, Engel's, Millington's, and Lee's concerning the action of pus admixed to the blood,—all these suppositions appear not sufficient to explain the fact of the coagulation within the vessels. Referring to one of his former essays "*On the Origin of Fibrin, &c.*," Virchow repeats that the influence of oxygen is necessary to effect the coagulation of the "fibrinogenous substance;" this oxygen, when not admitted through lesions of continuity, must be developed within the blood itself, and he is inclined to find the source for this in the spontaneous decomposition of the blood-globules in the stagnating blood.

With respect to the relation between phlogosis and thrombosis in the vascular system, there is no doubt that they are mutually inter-

dependent; but primary thrombosis is much more frequent than primary phlogosis. Phlogosis induces thrombosis principally in cases of endocarditis, when the roughened or ulcerated surface causes deposition of fibrin on the walls; and further, in suppurating inflammation or necrosis of the membranes.

In concluding this chapter Virchow treats on some of the principal varieties of thrombosis. 1. The *marantic** thrombosis (the spontaneous, rheumatic, or metastatic phlebitis of some other authors) is the most frequent form, and may be induced by many debilitating diseases; in consequence of the diminished power of the heart the circulation becomes retarded in the most distant points, especially the veins of the extremities, the pelvis, and the cerebral sinus. The commencement of the nucleus of the thrombus is, in general, situated behind the valves, exactly in the angle in which these are attached to the veins. 2. Thrombosis through *compression* (ligature, dislocation of bones, &c.) 3. Thrombosis through *dilatation* (varices, aneurisms, teleangiectasizæ, &c.) 4. The *traumatic* thrombosis; *a*, thrombosis from *venæsection*; *b*, from *amputation*. 5. Thrombosis of *new-born children*, analogous in some respects to that from amputation, and the forms of *fœtal* thrombosis. 6. *Puerperal* thrombosis. A moderate degree of placental thrombosis is a physiological process, only by too great extension (incomplete contraction of the uterus) it becomes pathological, approaching in its origin the venæsection-thrombosis; but the marantic form, that from dilatation and compression, may coexist. 7. *Secondary* thrombosis, through inflammation of the coats of vessels. The inflammation most frequently leading to thrombosis is the suppurative variety, during which, through the ruptured internal membrane, pus may enter into the cavity of the vessel; the thrombosis, however, is, in general, formed before the perforation of the internal membrane; it thus prevents at first the admixture of pus with the blood, but by degrees it breaks off, or deliquesces, or may undergo an ichorous metamorphosis, and may propagate the contamination to the blood itself. All these varieties of thrombosis, as also the other subjects treated of, are elucidated by a large number of well-described and well-adapted cases, which form an important element in the whole volume—a circumstance through which its value is greatly increased.

Embolia and Infection (pp. 636 ss.)—The discussion of the doctrine of pyæmia leads to the examination of the question, whether the principal symptoms are to be considered as produced by the mechanical (globules) or by the chemical action (absorption of the serum) of the pus? The theory of the irritating or obstructing nature of the pus-globules appears perfectly inadequate to explain, by itself, the phenomena ascribed to pyæmia; these must be divided into two series, the one depending on mechanical, the other on chemical influences, or, in other words, into the phenomena of embolia and infection; both are frequently combined, but more frequently separated. The theory of the mechanical metastasis of pus has lost much of its plausibility, since we know that the metastatic abscess is not formed by a mere metastasis of pus, but is originated by a lobular suppurating inflam-

* *μαραντος* = *μάρανσις*, the witheredness, tabefaction, atrophy, etc.

mation. Through this fact the purulent diathesis has become another form of inflammatory diathesis, characterized, however, by a tendency to suppuration. This inflammatory-purulent diathesis can, in many instances, not be explained by the admixture of pus globules—i.e., the mechanical element—as the phenomena of small-pox, of syphilis, and glanders clearly show; but these conditions point to chemical actions. The author here proposes three questions: the first, regarding the *diagnosis of the presence of pus* in the blood, has been treated of already in the section on leukæmia; the second, concerning the artificial production of the so-called purulent diathesis, induced him to try the injection of various fluids into the veins of dogs: *a*, admixture of putrid fluids (the products of simple putrefaction of animal substances, as water from putrescent fibrin), did not produce evident metastasis, and caused death sometimes without abscesses (Castelnau and Ducrest); but the author considers this subject as yet as insufficiently examined; *b*, the injection of pus led to the following results:—1. Normal, fresh, not specific, pus does not produce, when carefully injected, perceptible anatomical alterations, especially no metastasis—an inference which agrees with those of Dupuytren and A. Boyer. 2. The same operation performed with unfiltered, or very coherent pus, principally when a large quantity is injected in a short time, is followed by the formation of many centres of inflammation and suppuration. 3. When the injected pus is putrid, or specific, these secondary centres have the same character. 4. Injections into the arteries have the same effect as those into the veins. 5. A great part of the consecutive anatomical lesions is to be ascribed to thrombosis which may be caused by the ingestion of accidentally admixed blood coagula, and is not the necessary consequence of the injection of pus. The answer to the third question, namely, “Is the injection of real pus into the blood to be considered as the cause of the pyæmic phenomena in man?” is based on the result of the previous researches and on the analysis of some additional cases.

“The existence of pus in the blood,” Virchow says, “cannot, as I have endeavoured to explain, be proved with certainty. The absorption of pus in substance we were obliged to refute, the aspiration of pus has been limited to few instances; the perforation of abscesses into veins has been designated as a rare occurrence. Finally, we have been able to demonstrate that suppurative phlebitis, as a rule, is the product of thrombosis, and that venous pus is the detritus of fibrin and blood-globules.” (p. 665.)

On the other side it cannot be denied, after a careful examination of many cases of pyæmia, that they are caused by an alteration in the blood; it further cannot be doubted, that foreign substances may enter the blood from the primary centres of disease; it also appears probable that the principal part of this absorption is not performed by the veins situated in the diseased or wounded spot itself, as they are in general filled with a thrombus, but by the nearest of those ramifying in the neighbourhood in which the circulation continues, as also by the lymphatics. By this assertion, Virchow, of course, does not exclude the possibility of the absorption of fluid substances contained and formed in the thrombus itself. Regarding the chemical nature of the

diffusible agent thus admitted into the blood, the author can give no definite explanation; every one, however, will agree with him in assuming that it is of different quality in different conditions; thus it appears inaccurate to speak of *putrid infection* (septicæmia or septicæmia) in those cases in which the symptoms become manifest before any putrefaction or suppuration can have taken place, as in some miasmatic and endemic affections.

"Here we have to deal neither with pus nor the common products of putrefaction, but with specific fluids, which are, no doubt, in a state of transmutation, which originate in the lymphatic fluids, under the influence of miasmatic or epidemic influences, and may infect not only the patient's own body, but also that of others. The chemical quality, by which the humours are altered, is unknown to us; we can, therefore, not use it for the appellation of the altered crasis of the blood. But vitiated the humours are which become admixed to the blood: we can, on that account, without hesitation, select a name from this circumstance; I propose, therefore, to call the condition *ichorrhæmia*, as already the ancients understood by *ichor*, corrupted humours." (p. 702.)

Virchow's *ichorrhæmia* differs therefore from septicæmia, or septicæmia by the absence of the really putrid elements; both have that in common, that they are caused merely by infected fluids. The *ichorrhæmia* is further distinguished by being combined with a larger amount of colourless blood-globules and fibrin, thus approaching, in this respect, the inflammatory crasis (*phlogæmia*). Finally, the author agrees with Rokitansky in the view that there does not exist a condition which deserves the name *pyæmia*. The *ichorrhæmia*, which is to supplant the *pyæmia* in many instances, possesses, as was just mentioned, the same inflammatory diathesis which had been ascribed to the old *pyæmia*. In the concluding part of this chapter Virchow gives a *résumé* on some points connected with embolism, on which, however, we are unable to enter. In the same manner we are obliged, for the present, to pass over the remaining sections, which contain contributions to *Gynaecology*, to the pathology of *new-born children*, to the pathology of the *cranium and brain*, and an essay on *caneroid* and *papillary tumours*.

All these essays will amply repay a careful perusal, which will not only convince the reader of the extended and varied knowledge of the author, but will also show him that Virchow's method of investigation is a truly philosophical one, combining observation, experiment, and induction, in a manner which we rarely meet with, but which must necessarily tend to the real advancement of science. We may, therefore, express our confident hope that the author will make good use of his present influential position as Professor of Pathological Anatomy at the University of Berlin, with clinical wards in the Charité, and a chemical laboratory at his disposal; he is the right man to show the way to the study of the phenomena of disease, as well during life as after death, without over-valuing the one or under-rating the other; from him, we trust, his pupils will also learn not to depreciate the action of therapeutics, but to consider the art of healing as the last and highest aim of our profession.

REVIEW III.

1. *Report on the Pathology of the Diseases of the Army in the East.* By Drs. LYONS and AITKEN. ('Blue Book,' 1856.)
 2. *Discussion sur le Typhus observé dans les Armées pendant la guerre d'Orient.* • ('Société Impériale de Médecine de Constantinople.')—Constantinople, 1856.
- Discussion on the Typhus observed in the Armies during the War in the East.* ('Imperial Society of Medicine of Constantinople.')

We observed in our Number of July, 1856, that it would be desirable to delay the consideration of Dr. Lyons' Report until all the documents which may be published on the Diseases of the War are before us. But, as it is probable that the official publications which have yet to appear may deal with portions of the medical history of the campaign different from that which is discussed in Dr. Lyons' Report, and therefore will require special and particular consideration, we deem it advisable not to delay any longer our notice of the only pathological report which we are likely to receive. The second work, the title of which heads this review, is the first publication of a Society founded at Constantinople during the war, and which included among its members several of the most distinguished Surgeons of the French and English services. The appearance of this publication, and the interest attaching to the subject discussed by the Society, will lead us in this review to select especially for comment that portion of Dr. Lyons' Report which refers to the Fevers of the Eastern Force.

Dr. Lyons was sent out in April, 1855, with instructions from Lord Panmure to investigate the pathological anatomy of the diseases among the troops. A very able letter of instructions was drawn up for his guidance, and has already appeared in our pages.* Drs. Aitken and Doyle were sent out under him, and a very complete and efficient apparatus was provided.

The advantage of sending out to Turkey men experienced in morbid anatomy, who might institute a regular and systematic investigation, is so evident that it would be an insult to our readers to insist on the point. For want of such men during the winter of 1854-55 at Scutari and in the Crimea, we have lost the opportunity of acquiring a perfect medical history of the campaign. That several thousand men died,—that certain causes produced their deaths,—is the limit of our information. The precise structural lesions which were the immediate causes of death we do not, and shall never, know. We shall receive, no doubt, tables of the diseases to which these deaths are officially referred; but this meagre information is not equal to what the scientific precision of the day demands.

We cannot blame the medical officers of the army for not investigating the morbid anatomy of the diseases prevalent among the army in 1854-55. The labours of these gentlemen were overpowering and

incessant, and they naturally threw aside that portion of their duty which could best be spared. Much better is it to have lost all the interest which the examination of those dead men would have given us, than to have taken from the living one moment of time, or one attention which might have aided in preserving a life, dear and necessary to the country.* The omission was inevitable, and must be inevitable in every campaign attended with unusual sickness, unless, as was done in the spring of 1855, and as is to be done for the approaching Chinese war, gentlemen are sent out for the single and exclusive object of examining the bodies of the dead, and of investigating the causes and the effects of diseases, instead of being occupied in treating them.

Unfortunately, however, in the Eastern campaign, the period of greatest mortality was allowed to pass by before the pathological inquirers were set to work, and their report is therefore by no means equal to what it would have been had their inquiries commenced simultaneously with the sickness. In April, 1855, when Dr. Lyons arrived at Scutari, the mortality of all the large hospitals aggregated there had fallen to four or five a-day, and soon fell even below this; and the types of disease had lost not only the intensity, but the characters which they had displayed in the winter. Subsequently, the diseases of the expeditionary force presented nothing specially remarkable or unusual; and in the English army in particular, various favouring circumstances combined to keep the health of the soldiers during the summer, autumn, and winter of 1855-56 in a condition unparalleled either in ancient or modern warfare. The French and Russians, indeed, as is well known, suffered greatly at the time when the English were most singularly healthy. "The English army," said one of the French surgeons, in the discussion of the Society at Constantinople, "is to the French what a rich family is to one less endowed with fortune's gifts;" and certainly no men were ever more zealously guarded from all sources of disease than were the survivors and successors of that heroic band whose sufferings and destruction will fill the saddest page of our military history.

After the arrival of Dr. Lyons and his assistants, the chief diseases among the English were typhus and typhoid fevers; and during the summer and autumn of 1855, it would seem clear that the latter disease constituted the great bulk of the cases, though in the previous winter and early spring there can be as little doubt that exanthematic typhus was much more prevalent. Scurvy had almost entirely disappeared, and though in the following winter it was again seen, it was in an extremely slight form, was easily checked by treatment, and did not influence in any great degree the progress of other diseases occurring in persons with this slight scorbutic taint.

The typhoid fever presented the deposits and ulcerations of the Peyerian glands, and deposits in the mesenteric glands, in the form so well known in Western Europe; Dr. Lyons says, "the enteric lesions were all but universally attendant upon it;" but he does not narrate the exceptional cases, in which, with all the other symptoms of typhoid fever, he found no ulceration of Peyer's patches. At p. 60

he gives a table of the chief morbid appearances in 59 cases of typhoid fever. In 31 of these cases there was ulceration of Peyer's patches; in 9 there was deposit in them, but the softened and ulcerative stage had not commenced; in 1 case only (No. 10 Pte. Hugh Love) Peyer's patches were unaffected; but this case was evidently one of double pneumonia, and not typhoid fever,* although it happened to be returned as "*Febris Continua Communis*." We have been unable to find any other evidence bearing out the inference to be drawn from Dr. Lyons' expression—viz., that the Peyerian glands were not invariably diseased.

The symptoms presented by the typhoid fever in the Crimea presented nothing unusual. Dr. Lyons refers to the frequent latency of its course; but this was not different from what occurs in a certain percentage of cases in France and England. Few things are more surprising than that practitioners will still look for strongly-marked febrile symptoms in every case of typhoid fever; these may or may not exist in a high degree; and there will always be a certain number of cases in which the febrile symptoms are extremely slight; a little elevation of temperature by 1° or 2° of Fahr., a moderate increase in the fulness and quickness of the pulse towards the evening, a little headache during the first five or six days of the disease, and scanty urine, may be the only symptoms of a case which is to terminate at a later date by hæmorrhage or perforation. Whether these cases were comparatively more numerous in the Crimea can only be known by proper statistics, and these are unfortunately not attainable.

It would appear from Dr. Lyons' observations that fatal cases at an advanced period were not uncommon, from continual progress of the intestinal lesion; and that frequently men returned to duty while this local affection was steadily advancing. This form of disease is a very interesting one, as it is comparatively seldom seen in civil life. At a certain period in typhoid fever, the specific disease of Peyer's patches ends, the mesenteric glands begin to lessen in size, and the nutrition of the body returns to its physiological condition. Under ordinary circumstances the intestinal ulcers rapidly heal; but from errors in diet, or from constitutional conditions unknown to us, they occasionally continue to spread in the mucous membrane of the ileum, just as dysenteric ulcers will do in the colon. Eventually the patient dies with obstinate diarrhœa and emaciation, or, much more rarely, by perforation. It can be well understood that this class of cases may have been very numerous in the Crimea; according to our observation, there was very little malingering among the men; there was almost always a great desire to return to duty, and this led many to report themselves as stronger than they really were; on discharge, therefore, from hospital with ulcers only partly healed, the coarse food and the exposure soon produced an increase of the intestinal ulceration; often, too, ulceration attacked also the colonic mucous membrane, and the case would have been termed "*Dysentery following typhoid*"

* "The left lung was condensed throughout, and was of a bright red colour on section, and non-crepitant, except a small portion of the apex. The lower and posterior parts of the inferior lobe (of the right lung?) were in a similar condition, and the texture of both was friable." (p. 64.)

fever." Cases of this sort ended sometimes three or four months after the original attacks, and the men were out and in hospital two or three times during this time.

In addition to dysentery following typhoid fever, many cases were seen in which typhoid fever had followed dysentery. We had not ourselves much opportunity of seeing this, but a very competent observer, now unfortunately dead, informed us that the association of rather old, healed, dysenteric ulcers, with recent typhoid fever, was too frequent to allow him to suppose the coincidence was accidental. Dysentery, it is true, prevailed in the army, and a certain number of dysenteric persons would necessarily be afterwards attacked with typhoid fever, but during the summer, autumn, and winter of 1855-56, the dysentery and the typhoid fever were not so common as to lead one to suppose they would very frequently be found in the same person. It is possible, then, either that the same persons had a constitutional tendency to both dysentery and typhoid fever, or that the dysentery predisposed to the last-named disease.

Dysentery also accompanied the febrile stage of typhoid fever more commonly than it does in England and France, so that the affection of the large intestine, before, during, and after typhoid fever, may be considered to have been decidedly more pronounced in the Crimea than we are accustomed to see it here.

General tuberculosis occasionally followed the Crimean, as it will do the English, typhoid fever.

The so-called "Crimean fever" was simply the typhoid fever. There was no special and distinguishable Crimean fever; there were intermittent, remittent, and relapsing fevers (probably), and typhus and typhoid fevers, but there was no disease to which, scientifically, the term Crimean fever should be applied.

The mortality of the typhoid fever cannot be known, as the correct diagnosis was frequently not made, and as in the army returns there is only one general heading of Continued Fever. Not infrequently cases of typhoid fever appear to have been returned as diarrhoea. At page 3, Dr. Lyons gives a table of 16 cases, which were returned as being fatal from "diarrhoea." These cases were really—

Typhoid fever	6
Typhoid fever, with dysenteric ulceration	3
Dysentery	3
Pneumonia	1
Peritonitis	1
General tuberculosis	1
General serous inflammation	1
	<hr/>
	16

Among Dr. Lyons' 50 fatal cases (pleurisy, pericarditis, meningitis, peritonitis), we notice only 2 cases of perforation. We conceive there is no disease which the army medical officer should study more carefully than typhoid fever. Its frequently insidious course, its duration, and its sequelæ, render it a most difficult disease to treat, unless the diagnosis is made early. Then all becomes clear, and the patient has

the full benefit of what we know respecting treatment. It is certainly surprising, considering the way in which the subject has been discussed of late years, to find how ignorant men still are of this most common disease. Out of the 16 cases just referred to, no less than 9 were of typhoid fever, and yet this grave fact was never suspected. Dr. Lyons refers to another case, in which a man was discharged from hospital, after "a short fever" of seven or eight days, and was then in a few days readmitted, and speedily died with 'extensive ulceration in the ileum. The fact simply being, that the decline of headache and fever—which in mild cases of typhoid often occurs at eighth or tenth days—must have been mistaken for full convalescence, and the unhappy soldier was therefore thrust out of hospital, and was compelled to perform his heavy duties during the height of a disease, which had been made dangerous and fatal by an unpardonable mistake. How many cases of typhoid fever do we see in civil practice, in which life is imperilled, and sometimes destroyed, by the indiscriminate use of purgatives, the disease receiving all sorts of names but the right one, and being treated in all kinds of ways but the proper one? Hæmorrhage or perforation is sometimes the first symptom which startles the practitioner out of his dream of a "bilious seizure," or a "slight bronchitis," or something of that kind. In Dr. Lyons' description of the morbid appearances of typhoid, we notice nothing unusual.

The typhoid fever, although most prevalent during the summer and autumn of 1855, was seen more or less till the complete evacuation of the Crimea. During the winter, however, cases of typhus became more frequent, although in the English army they never became very numerous.

In the French and Russian armies, however, soon after the capture of Sebastopol, typhus, which had existed all the summer, began to assume an epidemic character, and from this time till May, 1856, it ravaged these armies with a fury unknown since the great epidemics of the imperial wars.

The reason of its spread was almost always attributed by the French and Russians to two causes; viz., a general scorbutic condition of the men, and an immense amount of over-crowding both in the barracks and hospitals. The Russians, retiring from Sebastopol after the 8th of September, were concentrated in the valleys, where they suffered greatly from intermittents, and the hospitals became much crowded.

"As the result of this over-crowding" (said a Russian physician, M. Alferieff,* to the Constantinople Society), "the typhus appeared. At Simpheropol, at Odessa, and at Nicolaïeff, there was also over-crowding, which was evidently the cause of typhus in these different cities. The unfavourable season may have had an influence, but in all cases over-crowding (encombrement) must be recognised, if not as the unique, yet as the essential and most active cause of the epidemic. The description of typhus, as given by Hildenbrand, corresponds perfectly with this disease. . . . The eruption which

* This gentleman, the Professor of Pathology at Kiev, and M. Moering, Professor of Hygiene at Kiev, were sent by the Russian Government at the beginning of the autumn to Odessa, and then to the Crimea, to inspect and report on the health of the troops. After the peace they proceeded to Constantinople to survey the French hospitals.

like the papules of measles, appeared generally on the thorax and abdomen, extended sometimes over the whole of the body, and even to the palms of the hands. . . . The duration was seven or fourteen days, or longer. The most usual complication, when the disease lasted for any time, was pneumonia, such as is characterized by M. Piorry as hypostatic. But this pneumonia, sometimes lobular, sometimes lobar, was not always limited to the posterior and inferior parts of the organ; it extended sometimes to the summit, it had not any very pronounced symptom, there was scarcely any cough, a slight dyspnoea, the characteristic expectoration was wanting, and without auscultation it would have been most frequently undetected." (pp. 126-127.)

His observations have "led M. Alferieff to reject the opinions of those who admit that the typhus and the typhoid fever are the same disease." (p. 127.)

Further particulars as to this Russian typhus were given by M. Moering, who was charged by the Russian Government to examine the chemistry and the microscopic anatomy of the blood and organs. M. Moering had made about two hundred dissections. The chemical results were negative; he found albumen in the urine towards the end of the disease, but it does not appear that he examined the urine otherwise. The analysis of the blood led to no special result, except that the absence of ammonia was ascertained. The anatomical conditions were hyperemia of all the organs and of the muscles, during the first week, and increased epithelial formation on all the mucous surfaces. The hyperemia, thus general, "had no special seat of election." In the second week the membranes of the brain were more particularly affected; the arachnoid was opaque; the depending parts of the brain were softened; the posterior parts of the lungs were engorged, while the anterior were a little emphysematous. In the intestine there was increased mucus, and the follicles were even a little swollen. At the end of this period there was often parotitis. In the third and following weeks the lesions were very variable; the lung and the intestine, especially its inferior part, were the organs most affected.

"But the lesion of the intestine was not that of the typhoid fever; it was in fact only a softening of the mucous membrane. Twice only were ulcerations found in the small intestine; but these individuals laboured under tuberculosis, and these ulcerations were evidently due to this general disease, since they had none of the characters of the dothi-enteric lesion described by M. Louis." (p. 130).

The amount of mortality caused by this fever in the Russian army is not known, but we have reason to believe it to have been enormous. Although not mentioned by MM. Alferieff and Moering, it was attended by scurvy; and we have it from a competent witness, that at Odessa, at any rate, every scorbutic person attacked with typhus died. It was perhaps fortunate for the English army that the advance so ardently longed for was prevented by the unexpected peace; the Russians, no doubt, more than decimated by disease as they were, would not have resisted the attack of the English troops, who were in the highest state of vigour and endurance; but in the Russian positions the English would have met a foe more deadly and more tenacious. As it was, the repose of the winter, which strengthened, the English, exhausted the Russians; and if the elements fought

against us in the previous year, we gained an ally in the following winter, which silently sent more victims to their rest than the most deadly volleys of the red artillery.

Nearly at the same time that the Russians retreated, the French began to suffer. All the hard work during the autumn and winter of 1855-56 fell upon them. They were écheloned in vast masses along the marshy valleys of the Tchernaya, and suffered like the Russians from malarious fevers and from typhus, which spread rapidly in the regiments; their ambulances soon became overcrowded, and were emptied into Constantinople, where they had hospitals capable of holding 14,000 sick. On board the hospital ships the fever always increased; the Constantinople hospitals were soon overcrowded, and the terrible state of things with which we are all familiar, commenced. Despite the organization and the admirable foresight of the French, they were for a time overwhelmed; the fever spread from bed to bed, the intensity of the propagation being in proportion to the overcrowding (Jacquot); a considerable proportion of medical officers and 600 male attendants were attacked in two months; the Sisters of Charity and the priests largely suffered; the culinary and laundry arrangements could not meet the pressure, and finally (at the end of March) the transit of sick from the Crimea to Constantinople was stopped, and the army in the field was for the time compelled to provide for its own sick. The mortality at Constantinople, from November to April, has been variously estimated at from 15,000 to 40,000. The mortality of the fever itself at some of the hospitals was 35 per cent. In these secondary hospitals, in fact, the disease was more general and more fatal than in the Crimean ambulances.

With respect to the distinction between this typhus and the typhoid fever, a fierce discussion was carried on among the French doctors at the Imperial Society. On the one side, M. Cazalas, the principal medical officer of the Hôpital de l'Ecole, represented the indefinite school, and asserted that:

"1. Identical in reality, typhus and typhoid fever differed only in form.

"2. The typhus, properly so called, common in the Crimea and in certain hospitals at Constantinople, existed at the Hôpital de l'Ecole only in isolated cases, which did not generally differ from the typhoid fever.

"3. The diseases which declared themselves among the convalescents at Constantinople were sometimes gastric fevers, the typhus or typhoid fevers; sometimes a cerebral congestion, a meningitis, an active or passive hydrocephalus; sometimes a remittent or intermittent affection.

"4. These diseases were all complicated with scurvy, and very often with chronic diarrhoea.

"5. These diverse affections seldom ran their course without complication of remittance or intermittence, and those which had the intermittent or remittent character had a great tendency to continuity.

"6. All these affections tended equally to take a typhic or typhoid character.

"7. The pathological states resulting from the *mélange* of all these elements were very complex. The scurvy is, perhaps, always the foundation; and the gastric, intermittent, and typhic elements enter most often into their composition. . . .

"8. These morbid states are, for the most part neither typhus nor typhoid fevers; they are the complex accidents in which the typhus has only a

secondary rôle, and are determined in cachectic or sickly men by the access of fever, or reactions too violent for the organs enfeebled by scurvy or by a miasmatic infection, either animal or vegetable.

"9. These states have only exceptionally a regular course and a constant symptom, stupor with delirium, like typhus; they offer in general the form and the marks of typhoid fever; and at the autopsy the lesion which characterizes this malady." (p. 19.)

We omit six other statements made by M. Cazalas, as the above quotation sufficiently expresses his opinion. We need only observe that he afterwards says, that "the lesion of the typhoid fever is wanting when the invasion has been sudden and the death rapid." (p. 20).

It will be seen, on a critical examination, that two questions are raised by M. Cazalas, although they are not distinctly put. He alleges, first, that any special fever which could be called typhus was uncommon in his hospital, the cases in which were of a very complex nature, since the men had been acted upon by various causes, which profoundly influenced nutrition—viz., scurvy (which implies bad food), miasmatic influences, and fatigue. That cases do occur in which such profound lesions of nutrition give us forms of disease so complex as to render it difficult to refer them to any particular nosological heading, is certain; and it is a mere question of evidence how many patients in any given hospital are affected with such cachectic conditions, and how many with a disease to which a definite name can be given. At the other hospitals of Constantinople, the proportion stated by M. Cazalas was not found to be correct; and there prevailed, as a principal disease, a definite fever with a certain course, and which had characters so marked as to call for a separate and distinguishing name.

M. Cazalas's other proposition is, that this fever, when it did occur, was in reality the ordinary typhoid fever, only it did not present the definite intestinal lesion when its onset was abrupt and its fatal issue rapid.

On the opposite side to M. Cazalas we must place M. Jacquot, the chief of the French hospital at Pera. While this able physician fully recognises the possible coincident occurrence of typhus, of scurvy, of marsh fever, he insists much "on the necessity, to avoid confusion, of disengaging these morbid states from each other." (p. 29.) The great epidemic disease which ravaged their hospitals was not, he insists, a *mélange* of typhoid states superinduced on other diseases; it attacked sound individuals, it was highly contagious, it had definite symptoms; a special eruption, quite distinct from the typhoid rash, existed, and there was not the intestinal lesions of typhoid fever. By way of exclusion, M. Jacquot proves that it would be neither a meningitis nor an encephalitis, nor a cerebral congestion, nor a marsh fever, nor a typhoid fever, nor a *mélange* of typhoid states occurring in diverse maladies. With respect especially to dothi-enteritis, M. Jacquot asserts that the autopsies made by himself and MM. Hospel, Ganam, Valette, Barudel, Gaudurax, Tholozan, and Lallemand, amounting to 160 in number, prove that "the dothi-enteric lesion never exists in the typhus." (p. 149.)

M. Jacquot concludes finally:

"1. The reigning epidemic was the contagious typhus of armies.

"2. The typhus showed itself,—a, solitary, as when it attacked the persons composing the hospital staff, or in the Crimea the healthy men; b, it attacked convalescents arrived at such a state of reparation that it pursued its ordinary course; c, it attacked persons cachectic, scorbutic, or already affected with other profound maladies; the affection was then complex; the typhus was profoundly modified in its symptoms and in its march; its distinctive characters were obscured; the anatomical lesions were numerous and diverse; the curative means were multiplied; the prognosis was graver, the diagnosis difficult.

"3. Typhus and typhoid fever are distinct maladies, and they can be distinguished with facility at the bedside by the symptoms, the course, and the commemorative circumstances. The absence of the intestinal lesion of the typhoid fever verifies the diagnosis on the dead body.

"4. The Constantinople typhus had no special fatal period, nor any determinate and invariable duration.

"In addition to the true typhus, solitary or complex, there existed accidental or typhic states grafted on other affections." (p. 149.)

We need not now prolong this discussion. Few of our readers, we fancy, but will find M. Jacquot's opinions more consonant with their views than those of M. Cazalas. Like M. Jacquot, we found no difficulty, in 1855-56, in at once diagnosing the typhus and typhoid fevers among the English. The distinction, which in this country is one of the most facile clinical problems, was not more difficult in Turkey. It is true, however, that our men did not present the scorbutic and cachectic conditions which among the French masked the new disease, and rendered typhus occasionally difficult of diagnosis. These underlying conditions constitute the great difficulty in the management of disease in times of war. To recognise, appreciate, and treat them, is no easy task for men who have been accustomed only to the simpler features of disease in times of peace. A full description of these complex states has never yet been given, but we know no greater service that could be rendered to military medicine than a comprehensive modern work on the 'Diseases of the Camp and Army,' if it were written with the honesty and vigour of Pringle, and with the quick intelligence and keen insight of Robert Jackson.

If the French were for the time oppressed, and even overwhelmed by this terrible epidemic, their admirable organization soon began to regain ground; during the months of April and May, the fever rapidly declined, and it is a good example of the excellent method of our allies, that the French troops were conveyed home without any great outbreaks of typhus on board the transports, and without the introduction of the disease into France. To prevent the chance of this latter event, every sanitary precaution was taken, both in embarking the men in the Crimea and at Constantinople, and in landing them at Marseilles, where large camps and hospitals were formed, in which the men were placed in quarantine. The medical history of the war shows indeed in a striking way the advance of sanitary science since the Imperial wars of the first Napoleon. At that time, each army carried with it the spotted fever, and the ravages of the sword were not the only curse it inflicted on the countries it marched across. In this war the most careful steps were taken to prevent such a catas-

trophe, and the highest intelligence of the nation was employed in devising means for ensuring to the French troops a safe transit, and to the French people a safe intercourse. A successful retreat is said to be the most honourable thing after a decisive victory, and the French surgeons certainly retreated from the terrible disease which assailed them in Turkey with a skilful adaptation of means which does them great honour.

But we must no longer desert Dr. Lyons. His chapter On Typhus Fever is a short one, and presents no new feature of interest, and no post mortem examinations are recorded.

In addition to typhus and typhoid fevers, Dr. Lyons describes intermittent, remittent, and relapsing fevers, and what he calls "simple continued fever"—a disease, the description of which is too brief to enable us to pass any opinion on its nature, and of which we personally saw no examples.

The relapsing fever, as described by Dr. Lyons, occurred during the summer, and would seem to have presented the characters with which we are familiar here. The early symptoms were severe, and rapidly reached their acme, while on the fifth or sixth day there was sudden subsidence (crisis), with sweating. This apparent convalescence was followed by return of febrile symptoms after "two, three, four, or more days." No cases were fatal.

We had not ourselves any opportunity of accurately studying this form of disease, but we have been informed that it was seen in the Secondary Hospitals in the autumn and winter of 1855-6, and presented sometimes three or four relapses. It was probably this fever which was attended so frequently with jaundice, either during or after its course.

Passing from the consideration of fevers, we find that Dr. Lyons discusses at considerable length both cholera and dysentery. Six post-mortem examinations only are given of the former disease, and we observe no new facts which need detain us.

The chapter On Dysentery is written with very great care, and is illustrated with a table containing a summary of fifty post-mortem examinations of acute and chronic dysentery. The morbid anatomy of the Turkish and Crimean dysentery appears to be completely identical with that of the Indian disease. There was great exudation on and among the coats, sloughing, ulceration, commencing sometimes in the follicles, at other times in the membrane, or even, Dr. Lyons thinks, in the exudative layer which had become organized. This last observation (of ulceration commencing, not in the mucous membrane, but in lymph thrown out upon it and organized) is new to us, and we should have been glad to have seen it illustrated by some minute dissections. The implication of the solitary glands is described by Dr. Lyons very exactly, although he does not appear to have traced their changes beyond the early period of commencing ulceration.

"That the vesicular glandular apparatus of the large intestine often participates immediately in the dysenteric process is not only very probable, but we think that such participation is more common than is usually supposed." (p. 47.)

The fact is, however, that this change in the solitary glands has been

considered by some writers as the proper anatomical character of acute dysentery, and as a prior change to that intense hyperæmia and enormous exudation of lymph, which constitutes the better known anatomical characters of the disease. As far as they go, Dr. Lyons' observations support this view.

Coincident disease of the small intestine appears to have been more common in Turkey than in the Indian dysentery. The following table, drawn up from Dr. Lyons' summary, illustrates this:—

Headings in Dr. Lyons' Report.	No. of cases.	Ulceration or exuda- tion in small as well as in large in- testines.	Small intestine healthy, or more often with con- gestion, enlarge- ment of glands, or atrophy of membrane.	No note of small intestines
Acute dysentery	7	2	3	2
Chronic dysentery	9	1	2*	6
Complex dysentery	34	11	14	9
	50	14	19	17

The affection of the small intestines, in the cases of "complex dysentery," consisted in several (four certainly, probably six) cases of ulceration of Peyer's patches, and in several other cases these glands were "infarcted." As in Indian dysentery these glands seem never specially attacked, and suffer only where there is general disease of the whole iliac mucous membrane, it must be admitted that Dr. Lyons is quite correct in referring these cases to a complication of dysentery and typhoid fever. But apart from, and making every allowance for, this fact, the disease of the small intestines would appear to have been more common than in India, probably from the presence of special constitutional cachectic conditions, as it is under such circumstances, and especially in scurvy, that the small intestines are engaged, and show, not usually ulceration, but diphtheritic exudation.

The secondary affections of dysentery are treated rather shortly, and we are not very clear how closely Dr. Lyons associates them with the primary disease. They consist of changes in the liver, spleen, kidneys, and especially the lungs ("vesicular bronchitis and lobular pneumonia").

Returning from this very interesting section on Dysentery, to the commencement of the Report, we may observe that Dr. Lyons devotes a few pages to "Diarrhœa," a disease which, according to the official returns, is often fatal. On post-mortem examination, however, all the so-called cases of diarrhœa turned out to be typhoid fever, dysentery, tuberculosis, or pneumonia! and Dr. Lyons has never been able to meet with a pure fatal case of diarrhœa. It is quite time, indeed, that this term should disappear from our tables of deaths. The diarrhœa which was so common among the troops, but which was never really fatal, is arranged by Dr. Lyons under three heads—

1. Atonic diarrhœa, or lientery.
2. Bilious diarrhœa.
3. Congestive diarrhœa.

The lientery is described at some length as a disease in which the food appeared to pass through the stomach and intestines with little alteration, as if there were an arrest of "the digestive, assimilative, and absorbent functions." There appears to have been little pain, and, as far as we can gather from Dr. Lyons' account, there was no pouring out into the intestines of bile, or the intestinal fluids which constitute the stools of common diarrhœa. We did not ourselves witness any form of this disease, but a grave affection somewhat corresponding to it, but often very fatal, was seen in the Chinese war of 1840-42, and after death the mucous membrane of the small and large intestines was, we believe, pale and softened. In Turkey it appears to have been extremely slight, and many medical officers denied its existence.

After considering at some length, in the first half of his Report, the various diseases we have now shortly noticed, Dr. Lyons gives us, in a second part, a *résumé* of the pathological anatomy of the various organs. This is an important chapter, and is very well done. We should, however, have been glad to have had a statement of the number of cases from which the general conclusions are drawn. A rather novel feature in it is that the specific gravities, not only of the organs but of membranes, are given. These observations were made by Dr. Aitken, and reflect great credit on him. As a general result, it would appear that exudation into the intestinal mucous membrane, both in typhoid fever and in dysentery, raised the specific gravity of the membrane; and even in atrophy of the membrane, the specific gravity was above the natural standard. The point is sufficiently interesting to induce us to lay before our readers a portion of the table:

Specific Gravity of the Mucous Membranes.

	Maximum.	Minimum.	Mean.
Small Intestines:			
Peyer's patches	1.044	1.032	1.039
(a) Parts with glandular and exudative deposit	1.040	—	—
(b) Parts in atrophic state	1.038	1.030	1.035
Apparently healthy	1.036	1.030	1.032
Great Intestines:			
(a) Colon with dysenteric exudation	1.050	1.037	1.043
(b) Rectum	1.044	1.038	1.041
Atrophic degeneration	1.040	1.037	1.038
Apparently healthy	1.038	1.028	1.033

We are not, however, told from how many examinations these figures were derived.

We have now given as much space as we can afford to Dr. Lyons' Report. Our remarks will show the favourable opinion we entertain of much of its contents. It is written extremely well, is clearly expressed, and is in many parts very descriptive. The introduction, which contains a general statement of Dr. Lyons' opinions on the

pathological origin, progress, and treatment of the diseases of the Eastern force, is a very important document, and may probably come again under review on a future occasion.

Yet, with all these undoubted merits, we must frankly say that the Report has in some degree disappointed us. The absolute number of post-mortem examinations is not great, and they are communicated very briefly, and in many cases very imperfectly. More might surely have been done in this direction; and, considering that this Report will represent on the Continent the opinions of the most advanced British School of Pathology, no consideration should have prevented the fullest detail of all the morbid appearances. The chemistry of the fluids has been left untouched, and the microscopical notes are short and unsatisfactory. We have looked in vain for even a microscopical examination of the blood; and the absence of these inquiries is not compensated by any researches carried on at the bedside of the patients, for the histories of the diseases are even more meagre than the accounts of the post-mortem examinations.

Much, no doubt, has been done by Dr. Lyons and his assistants, and great were evidently the difficulties they had to encounter. Taking into account the real and great merits of the Report, and the difficulties the Reporters laboured under, some may think our remarks too severe. We can only assure Drs. Lyons, Aitken, and Doyle, that we should have had much greater pleasure could we have closed our review without any qualification of the favourable opinion we have generally expressed. We can assure them, too, that their Report is a gain to science, and will always be a document of interest and authority for those who study the medical history of the Crimean campaign.

REVIEW IV.

On the Constitutional Treatment of Female Diseases. By EDWARD RIGBY, M.D., Fellow of the Royal College of Physicians, Senior Physician to the General Lying-in Hospital, Examiner in Midwifery at the University of London.—London. 1857. pp. 324.

THE appearance of a new work from the pen of so eminent a physician—accoucheur as Dr. Rigby, cannot fail to interest the profession; for, notwithstanding the abundance of recent publications on obstetric medicine, there is still room for practical information on a subject which is daily gaining in extent and importance.

Dr. Rigby describes his book as strictly practical, and prepares the reader in his preface for the due appreciation of constitutional treatment in diseases of the female generative organs.

The experience of every observing physician demonstrates the fallacy of attributing much curative power to merely local means of treatment, and proves the utility of embracing large views of general or constitutional management. Abernethy displayed this in vivid colours to the surgeon; and the physician will also reap an ample

reward in the cure of disease, if he devote himself earnestly and perseveringly to the discovery of those constitutional defects and disorders which, hidden it may be from the sight of superficial observers, so constantly lie at the root of most of those phenomena the local manifestations of which are too often looked upon as the essence of the complaint, and the sole objects of treatment.

We are glad to find that Dr. Rigby has publicly enlisted himself amongst the number of those physicians who place their chief reliance, in the treatment of the diseases peculiar to the female, upon constitutional measures. The first three chapters of the work before us comprise the subjects of amenorrhœa, dysmenorrhœa, and menorrhagia; and although we cannot say they contain much that is new either in description or mode of treatment, they well deserve attentive consideration. With regard to amenorrhœa, like other functional derangements of the uterine system, it is, in fact, a *symptom*, an effect of general derangement; and, as Dr. Rigby justly observes, it behoves the practitioner to look beyond the mere local affection, and carefully investigate the abnormal or defective actions of the system upon which it essentially depends. It is undoubtedly a great mistake to imagine that the absence of this natural secretion is the *cause* of the numerous ills that accompany its retardation or suppression, although such is a very prevalent and convenient doctrine. Nothing is easier than to convince an anxious mother that her daughter's deteriorated health and sickly appearance depend upon this irregularity; it is, indeed, so natural to her to think so, that the practitioner needs no other explanation to satisfy her anxious inquiries. Does not this facility of accounting for diseased appearances often lead to an equally superficial method of treatment? And does not the young sufferer sometimes fall a sacrifice to the inroads of constitutional and organic diseases, whilst attempts are vainly being made to excite the appearance or reappearance of the menstrual discharge; its absence simply depending upon the demands made by other diseases upon the system, rendering it unable to establish or continue those functions of the uterus which otherwise ought to exist? In vain shall we under such circumstances administer savino, borax, cantharides, and other special emmenagogues, as they are called; until the constitutional powers are restored, no good effect will be produced; and thus we find the best emmenagogues are fresh air and exercise, and such medicines as are most calculated to regulate the bowels and improve the general health.

Dr. Rigby says:—

"The two most valuable emmenagogues which we possess, and which exert a special action on the uterus, are the preparations of iodine, and the *secale cornutum*. The iodide of iron is, perhaps, the best form for administering iodine to obtain its emmenagogue effects, and may be given in the form of pill or syrup two or three times daily. The *secale cornutum* is best given in the fresh powder, suspended in water with a little mucilage."

Dysmenorrhœa is referred to the following separate heads:

1. It may be connected with derangement of the digestive organs.
2. It occurs in a gouty or rheumatic habit of body.

3. Or it may be of an hysterical or neuralgic character.

4. It occurs in connexion with some inflammatory action of the uterus, usually the os and cervix; and,

5. It arises from ovarian irritation.

The presence of one or other of these causes must of course influence the treatment in each particular case, and general principles must be our guide. The symptoms attending that particular form of dysmenorrhœa in which the ovary is the chief seat of pain, are well described in the following extract:

"The organ becomes highly congested or actually inflamed; it swells considerably, and becomes intensely sensitive. The pain is of the most agonizing character, and is frequently attended with severe nausea, or obstinate and most distressing vomiting. The patient describes it as being different to any other pain she ever experienced, and dreads a return of the attack; its peculiarly unbearable, sickening character apparently resembling the sufferings from orchitis, or from any injury to the testicle in the male. This is decidedly the severest form of dysmenorrhœa, and, moreover, is remarkable for another peculiarity—viz., the formation of fibrinous exudations from the uterus."

The author further remarks:

"That a slight amount of ovarian irritation, although it will be accompanied by ovarian pain at the menstrual period, may not be of sufficient duration to produce the uterine exudations; hence, although we may have ovarian pain without exudations, we cannot have exudations without ovarian pain."

The chapter On Menorrhagia occupies thirty-two pages of well-written, practical matter, but we search in vain for anything that is not already familiar to the experienced accoucheur. The various causes of menorrhagia are usefully commented upon; and in cases where the hæmorrhage is very profuse, we are glad to find the means we have on several occasions practised and recommended, approved also by so good an authority as Dr. Rigby—viz., plugging the vagina with a sponge dipped in vinegar or alum-water, and throwing up a large enema of cold water. This, he says,

"Acts beneficially in many ways. By thus applying cold immediately along the posterior wall of the uterus, we not only produce a considerable check upon the activity of its circulation, but stimulate the organ to a firmer state of contraction, which will exert a powerful control on the profuseness of the discharge; and though last, not least, it will effectually clear the rectum of any fecal accumulations which may have existed, and necessarily tend to aggravate and keep up the discharge."

With respect to the concluding remark about fecal accumulations, we would strongly impress upon all students and practitioners who may be called upon to deal with functional or even organic diseases of the uterus, the absolute necessity of removing daily the solid contents of the large intestines. Of the *functional* disorders, fecal accumulations are perhaps the most fruitful source, and they never fail to aggravate those which depend upon organic change; the enormous quantity of solid material which lies packed up in the colon in some of these cases is almost incredible, and the removal of it often alone effects a cure. This, however, is not to be accomplished by means of strong purgatives, but by the daily exhibition of some mild aperient

for a length of time. Dr. Rigby recommends sulphate of iron and sulphate of magnesia, but we have found nothing answer better than a dinner-pill composed of one or two grains of watery extract of aloes, and the same quantity of extract of rhubarb; or this failing, a combination of compound colocynth pill and extract of henbane, followed, if necessary, by an occasional enema of warm water or gruel.

As an astringent in *leucorrhœa*, Dr. Rigby highly extols the infusion of red bark (*Cinchona oblongifolia*) with nitro-muriatic or sulphuric acid.

"I know of no astringent tonic so powerful as the recent infusion of this species of bark; and if the liver have been previously well roused to active secretion, and the bowels effectually cleared, a rapid improvement, not only of her general health, but also as regards the diminished leucorrhœa, will soon be evident."

On the subjects of inflammation and ulceration of the os uteri, the constitutional origin of these affections, in a majority of instances, is strongly, and we think justly, insisted upon; and ulceration unconnected with malignant disease of the uterus is stated to be a rare affection.

"Its presence can doubtless produce much irritation and corresponding local symptoms; but to assert that it is a cause of general derangement in the system, and to propound the postulate (for I can call it nothing else), that it is a most frequent primary cause of impaired health in women, argues either a singular ignorance of the fundamental laws of pathology, or great indifference to truth in the attempt to propagate and maintain certain doctrines in justification of an improper and dishonest mode of treatment."

Our own experience is strictly in accordance with the statement that many appearances denominated ulcerations were simply abrasions or excoriations, and that such cases can be speedily and effectually cured by general restoratives and such simple local means as will ensure entire cleanliness.

In reference to *displacements* of the uterus, a good description is given of one of the most troublesome we meet with; and it would be a great boon to those who suffer from it, and to the profession, to discover a more effectual and painless mode of cure than the introduction of an instrument into the cavity of the uterus.

"In examining a case of retroversion of the unimpregnated uterus during life, the finger can frequently reach a firm, globular mass, like a walnut, situated behind the cervix uteri, and evidently posterior to the vagina. At the first touch, or to one unacquainted with this condition of the womb, it seems like a lump of scybalous matter in the rectum, for in many—perhaps in most instances—the finger cannot reach sufficiently high up to distinguish the continuity of this mass with the cervix, the point of flexion being usually in the body of the uterus, close above its junction with the cervix. In other cases, where the fundus is low down, being either on a level with, or even lower than the os uteri, the curve in the posterior wall can easily be felt and traced by the finger from the cervix to the fundus. On examining per rectum, we feel the same hard lump through the anterior wall of the intestine; and by being able to reach higher up in this direction than with the finger per vaginam, we can frequently verify or correct our first impression."

In speaking of *uterine polypi*, they are said to

"Vary as to their size, structure, and the part of the organ from which they grow. The large polypi, which are usually of a fibrous tissue, arise from the sides or fundus of the uterus, while the soft polypi, which consist chiefly of fibro-cellular tissue, more or less condensed, and covered with mucous membrane, arise from the os and cervix.

"These larger polypi are usually solitary, but the smaller ones, which have been commonly called *mucous polypi*, and which have their attachment to the edge of the os uteri, or just within the canal of the cervix, generally occur two or more together, or sometimes like a fringe around the greater part of the os uteri." (pp. 163-4.)

In corroboration of the opinion of the late talented Dr. Gooch, that it is advisable to remove portions of malignant disease when it assumes a shape fitted for the application of a ligature, we quote the following paragraph, being strongly convinced that such a course is often extremely desirable, and, owing to the uncertainty of diagnosis, sometimes entirely successful :

"A polypoid mass of malignant growth is generally considered as unfitted for the ligature; but having treated many cases of malignant disease in this manner with good effect, I can affirm that it is not only safe, but capable of producing great relief to the patient. I deny that this relief being necessarily only of a temporary character, is a contra-indication to the use of the ligature; and in many inveterate cases of fungoid uterine disease I have had reason to be thankful that such a means was in my power for lessening the constant discharge, the frequent hæmorrhages, and severe sufferings of the patient (although I was well aware that it was but for a while), and that she has thus gained a few weeks more of ease and comparatively improved health. Hence, I have never hesitated, in every case of malignant uterine disease, to apply a ligature, if the shape of the tumour rendered it possible."

The following observations on the treatment of cancer of the uterus are particularly deserving of the attention of practitioners :

"I find considerable difficulty in stating what ought to be the treatment in its early stage, or stage of induration, not only on account of its incurable character, but also because its commencement is so insidious, that we can rarely have an opportunity of investigating the case until extensive mischief already exists. Even when examined at an early period, the practitioner, it is true, easily recognises the solid feel and alteration of the part, and the darting pains and cachectic looks of the patient probably confirm his suspicions; but he dreads to decide the point at this early stage, and hopes on, naturally wishing to give the patient the benefit of every doubt. I have felt the cervix uteri in other and apparently similar cases, as hard, or even more so, and probably more tender; and yet when I had removed the source of irritation, or allayed the inflammatory action of the part, it has assumed its natural characters. I cannot but think that this would be the reasoning of most practitioners in examining a suspicious os and cervix uteri at this stage. In those cases where the suspicious part consists merely of a little isolated tubercle, not bigger than a small pea, and which is probably an indurated muciparous gland, but which is becoming tender and irritable, and the patient complains of lancinating pains, which she distinctly refers to this point, we can successfully obliterate it by holding a piece of lunar caustic against it for about a minute: the darting pains cease henceforth, and on examination two or three weeks afterwards, the tubercle will have nearly, if not entirely, disappeared. With this exception, I have no hesitation in declaring, that the application of caustic in either stage of the disease is mischievous; if applied during the first, or stage of induration, ulceration is liable to be brought on,

where, but for this cause, the disease might have continued in abeyance even for years. In the second stage—viz., of ulceration, I have repeatedly seen the process greatly accelerated by caustic; the sore quickly assumes a corroding character, and spreads with a destructive rapidity which soon exhausts the patient." (pp. 214-215.)

The diagnosis between cancerous ulceration and the corroding ulcer of the os uteri is well described:

"1. The patient does not suffer the acute darting pains which are commonly so remarkable a character in cancer of the uterus.

"2. Nor does the touch of the finger produce the severe pain which is frequently the case in cancer, but a sensation of soreness.

"3. There is no induration of the surrounding parts, as in cancer; on the contrary, they are soft and natural to the touch.

"4. The uterus is quite moveable.

"5. The disease, commonly, does not extend beyond the uterus." (pp. 212-3.)

And, in the present day, when the application of caustic to almost every variety of uterine ulceration is so fashionable, we cannot but think the following remarks especially appropriate:—

"The more I consider the causes and characters of phagedenic ulceration in other parts, the more do I feel convinced that it is in general, and not local, treatment that we must chiefly put our trust. It must be by the appropriate use of alterative, laxative, and tonic medicines that we hope to produce such salutary changes in the unhealthy circulation as shall be incompatible with the morbid action which has been set up in a part; and that so far from irritating the slumbering mischief into rapidly destructive action by the senseless use of escharotics locally applied, our endeavour should be to retard its progress, as far as possible, by such applications as shall soothe its irritability, and, at any rate, keep it in a dormant state. By far the worst cases which have come under my notice have been those where caustic has been applied. The ulcer, till then, had been advancing slowly; but, immediately after its application, it seemed to assume a new character. It had spread as much in two or three days as it had done before in a month. The hæmorrhages became more frequent and profuse, and soon exhausted the patient." (pp. 243-4.)

The three concluding chapters, *On Ovarian Affections*, contain much useful information, and well deserve a careful perusal; but we cannot help expressing regret that Dr. Rigby has given us so little of his own personal experience, and quoted so largely from other authors. That which he has published is instructive and good, and so far not to be found fault with; but there is not much that we can fairly call original; and this, considering the high position and large practice of the writer, disappoints the expectations we had formed on first seeing a new work from such experienced hands. Before concluding our remarks, we feel it right to notice two circumstances, with respect to which we differ; they are not, however, stated on Dr. Rigby's authority, although he appears to sanction them. The first is the statement that the multilocular ovarian tumour must be placed as colloid disease by the side of goitre (p. 285), and that there is a close relation existing between it and bronchocœle. That it is connected with the strumous constitution we have no shadow of a doubt; but its analogy with bronchocœle is surely disproved by the almost certain curability.

of the latter, and the constant fatality of the former. The second is the statement quoted from Mr. Safford Lee, that

"Whatever may be the appearance of the complicated structure of ovarian tumours, we never have them producing the effects of malignant disease; nor can they be recognised by their symptoms. There is not a case on record where the colloid-looking portions of the cyst have spread to, or communicated disease to, neighbouring tissues." (p. 291.)

We are acquainted with a case in which the abdomen was occupied by a very large cyst, connected with the right ovary by a thick fleshy pedicle, and adherent over its whole anterior and upper surface to the peritoneum, particularly at and around the umbilicus. The intestines were pressed into a very small space on the left side, in the situation of the spleen. The cyst contained almost a pailful of dark chocolate-coloured fluid, which in the lower part of the sac was thicker, of the consistence of paste, or even putty, and adhered in masses to the lining of the sac. The walls of the sac were of various degrees of thickness; thinner anteriorly, but posteriorly to about the size and shape of a placenta, very thick, and covered with glistening fibres like the expansion of tendinous structure. These thicker portions, when cut into, were found to contain numerous smaller cysts, in various degrees of development, containing gelatinous fluid. Behind the sac on the right side, adherent to it, but not forming an integral part of it, was a mass of cerebriform tumour, soft, and easily broken up with the finger, situated in front of the right kidney. The subject of this disease was a young woman, twenty-two years of age. Her complaint began with pain in the right side, about a year before her death, quickly followed by dropsy. Her body was greatly emaciated. Before death the abdomen was very much distended with fluid; fluctuation was everywhere remarkably distinct. On the right side a hardness could be felt through the parietes of the abdomen. Her aspect was unhealthy, similar to what is observed in malignant disease, and she died in the unusually short period of a year from the commencement of her attack.

Although we have expressed a desire for more originality, we are quite satisfied of the practical utility of the work before us; we strongly recommend it to those who are studying the diseases of which it treats, and shall look forward with much interest to a second edition, in which we hope to be supplied with a greater amount of the personal practical experience of one so qualified in all respects to communicate it, on the subject of ovarian disease.

REVIEW V.

1. *Report from the Select Committee on Adulteration of Food, Drinks, and Drugs.* Ordered by the House of Commons to be Printed, July 22nd, 1856.
 2. *Paddington Sanitary Report for the year 1856.* By J. B. SANDERSON, M.D., Medical Officer of Health. 1857.
 3. *Adulterations Detected; or Plain Instructions for the Discovery of Frauds in Food and Médecine.* By A. H. HASSALL, M.D., &c.—London, 1857.
 4. *Dictionnaire des Altérations et Falsifications des Substances Alimentaires, Médicamenteuses et Commerciales, avec l'Indication des Moyens de les Reconnaître.* Par M. A. CHEVALLIER, Pharmacien-Chimiste, Membre de la Légion d'Honneur, &c. Deuxième Edition.—Paris, 1854.
- Dictionary of Adulterations of Alimentary, Medicinal, and Commercial Substances, with Directions for their Discovery.* By M. A. CHEVALLIER.

WHOEVER adopts Mr. Froude's recommendation to study English history in the Statutes at Large,* will find, first, that John Bull has from time immemorial been in the habit of quarrelling with his bread and butter; and secondly, that his complaints have always attracted the attention of the Legislature. An Act passed in the fifty-first year of Henry III., professes, in its preamble merely to confirm previous laws, when it condemns fraudulent bakers to the pillory, adulterating vintners and brewers to the cart's tail, and to a like penalty forestallers and butchers selling meat unfit for food, or which has been killed by Jews. That the Parliament had a precedent for the punishment is confirmed by Domesday Book, by which it appears that from the time of Edward the Confessor any one convicted of making unwholesome beer was at Chester enthroned on a tumbril of dung, or heavily fined.† Statutes of this nature accumulate as Parliaments are more frequent; and it gives us a right notion of the business-like habits of our ancestors, to see that no political strife, no national revolution, turned their attention aside from the importance of social and material comfort to the kingdom. The turbulent peers and burgesses who in Richard II.'s reign were passing contradictory acts of attainder against each other, and were foolish enough to vote that any one should be held a traitor who proposed their repeal, could yet find time to make sensible laws concerning the cleansing of malt, to superintend the exportation of worsted, the breeding of salmon, to alter former acts oppressive to the weaver, &c. The single Parliament of Richard III.'s anxious reign seems to have been more interested

* On the Best Method of Teaching English History: Oxford Essays. 1855.

† "Malum cerevisiam faciens aut in cathedrâ ponebatur stercoris, aut in solidos debat præpositis."—Quoted in Selden, Titles of Honour, ii. 5, 3.

with the prevention of "devil's dust" in cloth, or short measures in oil and wine, and the protection of our infant manufactures, than with the succession to the throne. An invasion, Bosworth Field, and the introduction of a new dynasty of kings, intervene during the recess; yet, when the members meet again after a few months, many with bloody hands, many in deep mourning, we find them passing a sensible navigation act, gauging wines, defining the duties of tanners, and persecuting poachers. From this time the statute-book is choked with the multitude of long-repealed acts to restrain imposture in the prepared food and manufactures, which were daily growing in importance. They are duly recorded by Burn and Hawkins, and remain to attest the fact, that attention to the physical comforts of the people has always been viewed by the British Legislature as a duty admitting of no evasion.

To match fossil evidences of the care of our forefathers for these things, there are still in force several most stringent acts, designed by our own generation to secure the purity of food and drink. We have laws punishing severely the adulteration of bread, flour, milk, meat, tea, coffee, tobacco, sugar, wine, beer, spirits, and other excisable articles. The Report of the Committee of the House of Commons, which heads this paper, cites especially the "Alehouse Act" (the 9th of George IV.), as applying to beer, porter, cider, and perry; and the "Bread Acts" (the 3rd and 4th of George IV., and the 6th and 7th of William IV.), for farinaceous foods. These give power of search on a magistrate's warrant upon information for that purpose, and allow of summary conviction, with considerable penalties, cumulating on repeated offences. As respects general adulterations of other articles, any public body—such as a vestry, or a hospital, or a gaol, or a barrack—has its remedy in indictment under the Statute of Frauds; and individuals may and do proceed by action against the adulterating dealer for obtaining money under false pretences.*

Of late an opinion has begun to prevail that the Imperial Government does not do all that it ought to guard its countrymen from imposition; and that it is its duty to exert more force to stop an evil which presents to the public a very alarming aspect. Before they act, Parliament has been at some trouble to inquire by committee into the circumstances, and the Report here quoted is the result. But at the very threshold of the question, the Committee have to confess themselves puzzled by the very conflicting evidence as to the extent of the evil: some highly respectable and experienced witnesses pronounce that the amount of adulteration is really insignificant; others, equally respectable, that it is universal: some say that a great part of our daily food is rendered poisonous by the alum which all bakers put in it; others say that the alum does not remain there as alum, but is decomposed, and if it did remain, would be innocuous; some that no large brewer adulterates, and another that the beer he got from a public-house produced very curious effects; and so on.

* Mr. Goodman says he has successfully carried through the Central Criminal Court an action of this sort for sanding sugar. Report, &c., Answer §931.

Whence this discrepancy? We think it may be explained as follows. The articles last named in the list of the dietary protected by the law come under the cognizance of the collectors of Customs or Excise, and the exceptional power of visit possessed by these authorities enables them easily to obtain evidence sufficient for the conviction of fraudulent adulterators; and, in fact, it appears that the large manufacturers are prevented as a rule from tampering with any goods of which the component parts contribute to the revenue. But further the gauger's hands do not stretch. It is not his duty or interest to interfere often with the retailer. So long as Sir John Grains and Co. have made so much pure gift and paid tax thereon, it matters little to the Chancellor of the Exchequer that over Jack Smith's counter it is sold mixed with water and cardamoms. The consumer swallows in the end more of the diluted luxury, and in this particular case lives all the longer to pay his taxes; while, on the other hand, the cost of the prosecution of petty offenders would be very great. Hence, a witness acquainted principally with a wholesale trade may easily be sceptical about the existence of any adulteration; while another, who has purchased from retailers of all grades, may, among the enormous number of small struggling shopkeepers, find an alarming list of knaves.

Balancing, however, one evidence against the other, it is impossible to avoid the conclusion that a large number of the articles in daily use for food, drink, and clothing, are sold to the consumer in a state far removed from purity. And this, too, is generally the result of design, and is not declared by the name under which the article is sold. But a question may fairly arise whether it is right to call this deed always by the hard name of *Adulteration*—a word derived from the most degrading and anti-social sin denounced in the Decalogue; and which always rouses the public to indignation, and the perpetrator to denial. Is it not in many cases a *bond fide dilution*?—in many cases an improved mode of manufacture?—in many careless or stingy methods of preparation?—in many more a harmless catering to the whims of customers? Yet all these get classed together in the minds of the public along with the introduction of substances decidedly injurious or nauseous. Many a publican would hesitate to put strychnine or cocculus indicus in his beer, who yet daily waters his tap. And if a man sells milk cheap, he may illogically argue he has a right to dilute it. Such various opinions are expressed about the use of alum in bread, that we are bold enough to confess we think it an improvement to at least half the flour used in England. Those who bake at home are constantly condemned to eat a bad batch of bread because its use is forbidden in their kitchen, and without the employment of it a great deal of the wheat now turned into human food would have to be given to animals. By the use of alum a light friable bread can be made from inferior flour, which without it forms a tough, indigestible substance, like the French country bread so dreaded by the dyspeptic. Careless or stingy modes of preparation scarcely amount to a sin in a competitive country like England; they,

lower the price of the article, though they supply it nasty, and the customer soon learns to suspect it is not worth more than is asked for it; if in the habit of buying cheap those eatables where carelessness really introduces a poison, as in the case of pickles, he rapidly acquires a simple test of its presence. As to the whim and prejudices of the public, woe to the legislation which does not respect them. "Surely we may have our cheese coloured with annatto, our sugar plums with the contents of our colour-box, our sinners with saffron, if it pleases our eye." Before any new principle of legislation for the evil can be generally applied, it must be carefully defined where adulteration begins and ends; the four cases above instanced must be eliminated from it; and it must be clearly laid down whether the individual impurities (such as those cited above—water, alum, dirt, and paint,) are to be classed under them, or are to be made a heavier fault.

There must exist some means of preventing that which is intended as a check upon decided fraud, being made an oppression on individuals or a chain upon trade. How is this now done in the laws already existing on the subject? By simply adhering to the principle expressed in the legal maxim, "*caveat emptor*." For example, by the statute of Richard II., the mayor or bailiffs are to proceed against the dealers in sophisticated malt on the information of the consumers; and such is the intention of most subsequent legislation on similar points. The good sense of our countrymen is left to determine whether each individual case amounts to a fraud or not, and the plan is on the whole successful. The ninety-nine bakers out of a hundred who use alum, or put a small quantity of potatoes or rice in their loaves without marking them with an M, know they are liable to punishment; but they also feel confident that no customer would be foolish enough to bring the case forward unless the quantity was so great as to be a real injury to his stomach or pocket.

The Committee, then, seem to act discreetly when they recommend an adherence to what has been found suited to the English character, and quote the Bread Act as comprising "much that may be useful in framing a measure applicable to adulterations generally." By this Act, information must be laid before a magistrate, who grants a search-warrant at his discretion, imposes certain penalties for the proved offence, and, if he pleases, makes it public by advertisement. An appeal lies to Quarter Sessions, and no person can be convicted unless complaint is made within a reasonable period. It is probably impossible to go farther than this without the generalization of measures repugnant to English feeling, and only tolerated in the exceptional cases of the excise and customs from the obvious necessity for raising money by some means.

But several of the Committee's witnesses, whose opinions we are bound to respect, advocate the introduction of a repressive force much stronger, much more imposing, and more likely to exhibit striking results—but at the same time completely novel to the English executive: at least, as a general measure. "*Caveat venditor*," Dr. Hassall says in one of his answers, should be in future our commercial maxim;

that the tradesman should not be allowed to sell, even if the customer were willing to buy, and that encouragement should be given by Government to articles now avoided on account of their expense—such as crystallized instead of coarse sugars. Dr. Taylor suggests that there should be established authorities, with a power to search all shops, to take samples for analysis, seize what they consider noxious, and impose fines. Dr. Carpenter proposes “detective inspectors” of food and drink. Mr. P. Mackenzie, editor of the ‘Glasgow Reformer’s Gazette,’ would place a wider power of visit in the hands of the excise. Mr. Postgate would spread through the kingdom well-educated “custodiers of the public health,” with fixed salaries of about 500*l.* a year, who should employ detectives to purchase articles for them to submit to analysis. If these were found adulterated, then information should be laid before a magistrate by a public prosecutor, and that summary conviction should follow; that all tradesmen should be licensed, and a renewal of licences refused after repeated offences; that all persons accessory to “pernicious” adulteration should be amenable to the criminal law; and that the faulty nomenclature of an article should be an offence. He would have these custodiers in sufficient numbers to make any analysis which a customer should lay before them, not only of food, and drink, and drugs, but of linen, wool, silks, &c., and would place them under a central bureau like the French Conseil de Salubrité. Mr. Wakley suggests somewhat similar measures to be carried out through the Board of Health, its local medical officers, and a corps of visiting purchasers appointed by them. He would not impose heavy fines, but would advertise in periodicals and placard on church doors, and other public places the names of tradesmen who had been searched, so that all might know not only which was a bad shop, but which was a good one. He estimates the expense of such a machinery at about 10,000*l.* a year for London, not, indeed, expecting for that sum to inspect all the retail shops, but trusting to effect much by the terror inspired. Dr. Waller Lewis and Mr. Calvert also praise and recommend for imitation in this country the spy system pursued in France. Mr. Wallington advises that tradesmen should be forbidden by a Treasury order to deal in certain materials of adulteration; that they should be liable to have interrogatories filed against them, which they should be compelled to answer on oath, admitting or denying their guilty possession of these goods; that their denial should be followed by “inspection,” their admission or proof of perjury by an “injunction,” disregard of which should be a contempt of court, and involve imprisonment. It is needless to say that Mr. Wallington is a solicitor.

It is evident that there is here proposed a *general* employment of a machinery hitherto only *exceptional*, and the confessedly exceptional and unpopular nature of which has caused it to be less and less brought into play as legislation grows more perfect. A detective police has always been a hateful thing from the earliest ages, and never more so than when it has dealt with articles of diet. The Greek for an inspector of food (*συνκοφάντης*) was used by the shrewd Athenians as a

term of reproach for the worst of fair-seeming sinners, and means in Aristophanes something more odious than our translation "sycophant." Even in the strongest continental government, the long establishment of a detective force, or the necessarily high education of a censor of the press, cannot prevent the executives of these offices being the objects of avoidance and scorn. The same feeling would grow up with tenfold strength in such a country as England. Nor would matters be mended by the simple expedient advised by Mr. Postgate, of calling them "custodiers," or by any newly-invented nomenclature. The Puritans substituted the word "trier" for "inquisitor," without gaining popularity for their measures of investigation, and all similar evasions are soon found out. The worst of this would be, that a sufficient number of respectable persons could not be found to execute the office, as soon as it was found that "custodier" became as much a term of scorn as "sycophant," "delator," "informer," "trier," "inquisitor," "gauger," or "inspector." Certainly, no medical men, with whom the love and respect of their fellow-countrymen is the chief reward, could be induced to place themselves in so opprobrious a position as the employers of these means would occupy.

But even if a respectable body of officers could be got together sufficient to carry on the design of a detective repression of the evil, a doubt may be fairly expressed whether it would be so effectual as the present plan. If *caveat emptor* ceases to be the maxim, the buyer will learn to shift his responsibility on to the detective, and the occasional analysis of an expert will take the place of the constant supervision of customers. The latter are made as acute by interest as the former by science. An artisan may not be able to tell that his butter contains "Black Jacks" and "Bosh," or the exact per centage of its excess of water, but he soon finds out when it is nasty; he may be ignorant of the amount of solid material in his milk, but he knows when it is watery, and if so, makes a rough calculation whether it is worth while to give a higher price for a better article or not. Even those whose special vocation is chemistry and scientific research acknowledge that the palate is a more sensitive and readier detector of imperfection in food than the manipulations of the laboratory or the microscope. In a lecture on baking at the Polytechnic Institution, on the 31st of March last, Mr. Pepper said that the taste was a much better way of knowing good from bad bread, the presence of alum or the excess of water, than chemical or microscopic examination. The police of common sense, stimulated by interest, is preferable to that of educated detection.

Then again, the most frequent proceedings would of course be against the most numerous—the small shopkeepers. The sufferers would soon get up a cry that it was an attempt of the capitalist retailers to put down the "poor man's shop;" and it is not impossible that sometimes the law might in this way be really made an instrument of oppression.

To carry out such a system partially, as, for instance, in the metropolis, would be suicidal to its ultimate success. It would be purifying

the drawing-room at the expense of the passages and the kitchen, and would be merely shifting the evil. This is what actually happens in France. As regards bread, for example, Mr. Blyth tells the Committee how well the Parisian loaf agreed with him. And it is good, though with some dyspeptics we have found London bread agree better. But how is this goodness brought about? Simply because the strictness of the police prevents the bakers using any alum or mixed flours, and consequently the very best wheat alone can be employed. Hence the inferior article is thrown upon the provinces, and there the bread is almost universally bad; not adulterated perhaps, but nasty. Throughout Gascony it is musty, tough and innutritious; and at a town no less important than Caen, we once found a French fellow-traveller searching all the shops in the hope of obtaining some eatable bread for an invalid son. He was unsuccessful, and we were obliged to share with him the London biscuits we always carry when travelling in France. Such a thing would not have happened in the most neglected English village. But even in Paris the strictest police supervision does not secure in some articles so good a quality as the vigilance of customers with us. Milk, for example, in the French metropolis, is found by M. Becquerel to contain of water from 84.9 to 97.2 per 100, a variation of 12.3; while in 32 specimens analysed by Dr. Sanderson for the Paddington Report, the range is only 9.7, namely, between 86.8 and 96.5. None is quite so good as the Parisian, but none is quite so bad—an evident proof that the French article is the most artificially diluted. And it must not be supposed that even in continental governments a detective police always finds it easy to punish acknowledged fraud; for instance, the tribunal of Sarreguemines decided, a few years ago, that tallow rancid butter enveloped in a thin layer of fresh, could not be brought under the wording of the law. It is true that the "Procureur" got the decision reversed on appeal, but he had some trouble to do so even in France.* And at Bordeaux, Besançon and Brussels, the police have had to complain that their exertions in punishing the sale of poisonous bonbons were not seconded by the tribunals; a fine of two francs in one case, and of six francs in another, is an obvious insult to the prosecutor; and if chromate of lead does come under the notice of a judge appointed to prevent it, we do think the user of it should have more than a sixteen franc fine and a week's imprisonment.† It appears that these are typical examples of the working of the law on sugar-plums, for M. Chevallier cites no others. No police at all is better than such an inefficient one.

It is scarcely necessary to say that any systematic control over modes of manufacture, and the quality of articles allowed to be sold, is quite inconsistent with fair play to the principles of free trade. If we raise the price by ordering them to be made good and in less quantity, we must either protect the British merchant or ruin him. And even those who hesitated about the introduction of our present commercial system of free trade are generally anxious at least to give it a just trial.

The advocates of detection may perhaps argue, *extremis morbis*

* Chevallier: art., Beurre.

† Ibid.: art., Bonbons

extrema remedia—that the evil is of such magnitude as to justify even the most objectionable modes of repression. But the most trustworthy evidence—evidence resting on the personal experience of competent persons—does not by any means show this. Indeed, it proves the negative, as far as it is possible to do so. The vagueness of Mr. Accum's statements, which enumerate on hearsay the number of substances used for sophistication, has made the public suppose for the last quarter of a century that the poisonous and nauseous adulteration of food is just as common as the most harmless dilution. Hence there has been naturally a great alarm and outcry. And if Dr. Hassall had stopped short with the long tabular list of the names of articles ascertained by himself* to be fraudulently employed, some considerable alarm, though not so great, would be justified. But the carefully prepared details of his examinations, if really read, are calculated to dissipate much of the panic. For instance, beginning with the letter A, we find "Annatto" to be adulterated with flour, turmeric, and plaster of Paris, and on referring to the analyses,† we find that ponderable quantities of these substances, neither noxious nor nasty, were found. Then we read of red-ochre and red-lead. The former, one had rather be without, for it is a paint; but then we find there are only two grains of it in the hundred, while of the really poisonous lead there is only "a trace" in some few specimens. The "sulphate of copper" enumerated in the list is not mentioned in the analyses at all, and appears to have been the oxide. Considering, then, that annatto itself is only used to tint cheese, and to give to some milk the very slight orange colour it possesses—in fact, exists in our food only as "a trace," of which we should be a very long time in eating 100 grains—we feel quite willing to abide the consequences of our homœopathic doses of iron and lead. Next comes "Arrowroot," which we read without sorrow is often made of potatoes, tapioca, and sago. Then "Anchovies," which, instead of being from Gorgona, are sometimes "Dutch and French fish." Most of us would as soon eat them as the true *Engraulis encrassolus*. However, it appears that the red colour of the sauce is due to art, so that to prevent our eyes being offended with a dirty tinted condiment, we are eating paint. But here Dr. Hassall comforts us with the information that it is only ochre, or harmless iron rust, and we reflect that, were it copious enough to hurt us, we should immediately detect it, for we know the taste of iron well enough. He has never found even a trace of red lead.

Next in alphabetical order comes "Brandy," which sometimes contains water and burnt sugar. Then "Bread," in which the only suspicious article is alum; but in spite of its universal use to lighten the baking of second-rate flour, no single instance of injury to health can be found. And so on through the list of forty-four, amongst which the only articles designedly‡

* The liberty is here taken of substituting the singular number for the plural; for though Dr. Hassall modestly shrouds his identity by speaking of "ourselves," it is very evident that to him alone we owe the admirable researches contained in his book. The occasional dilution of them by the observations of others, we look upon as an adulteration.

† Adulterations Detected, p. 465.

‡ The copper in pickles is an accident from the use of saucepans of that metal. It is

sophisticated with deleterious substances are, "Cayenne pepper" with red-lead and vermilion; "Egg-powders" with chrome yellow; "Snuff" with chrome yellow (in nine of forty-three samples), oxide of lead (in three out of forty-three), and a suspicion of powdered glass; and the "coloured confectionary" of twelfth-cakes, &c., with external application of noxious pigments. Now of Cayenne pepper and snuff, the quantity swallowed even by the most inveterate is small; "egg-powders" are known to few, and eaten by fewer; and really the only one against which evidence of bad effects can be brought is the "coloured confectionary." But we have all been taught from our earliest days, that these "ships in full sail," "dogs," "ducks," and "sailors,"* were not made to be eaten, any more than tin soldiers and tops are to be sucked. An act of parliament which would deal with them must go deep into the toy question, otherwise it will be evaded by their being sold as "*Jouets d'enfants*."

Dr. Sanderson's special examination of the milk, bread, and flour sold in Paddington exhibits the acknowledged facts that there is very often water in our milk-cans and alum in our loaf, but that society's life is not in any danger. The ease with which the amount of these adulterations can be detected excuses us from pitying those who submit to them against their will, and renders unpardonable any guardians who allow them to proceed to such extent as to injure the poor persons entrusted to their care. The mere reputation of having occasionally put milk in a glass to try the quantity of cream in it, is often sufficient to render you safe: at St. Mary's Hospital the milk supplied is habitually richer than an average cow's yield (containing 13.2 of solid matter *vide* 12.98 per cent.), merely because some years ago it was tested by the galactometer. Dr. Neligan's evidence about the milk and bread of Dublin goes to prove the same point of the innocuous nature of the adulterations.†

But even the occurrence of a quantity of water very much above the average does not necessarily show that the seller is the guilty party. We all know how wet nurses vary in the aqueous contents of their milk, and the same is more strikingly the case in different breeds of cows, and as a consequence of different nutriment. M. Chevallier‡ quotes an instance in which the adulteration of bran with sawdust in Paris was detected through the thin milk yielded by the cows fed upon it; when to have fined the milkman would have been most unjust. The same difficulty in fixing on the real guilty party, and the same injustice in applying the principle of *caveat venditor* to the retailer, would be experienced in the case of all articles of food.

It is clear that it is through the pocket alone that society's health really suffers by the adulteration of food; and all readers of political economy by the light of history are, or ought to be in the middle of the nineteenth century, convinced that any attempt of the central

frequently found in them, but, according to Dr. Neligan's evidence, not in quantities injurious to health. So little alarmed is this analyst at copper vessels, that he has not interdicted their use in his own kitchen. The detection is immediate, from the precipitation of the copper on the steel knife, and is so obviously against the interest of the pickle-maker, that it may be omitted from the list of intentional adulterations.

* Adulterations Detected, p. 487.

† Report, March 12th, 1856.

‡ Art., "Sons"

government to interfere for the advantage of their people's pockets is a failure. It may *control* or arrest for other ulterior objects, but it cannot *promote* commerce.

On the whole, then, it may be concluded that the detective interference of a central authority with the vast masses of food which form the chief bulk of our country's merchandize, would only partially accomplish the end desired, would interfere with free-trade, raise the price of provisions (thus perhaps causing the starvation of thousands), and would establish a bureaucracy always odious, and more especially so when it meddles with domestic interests. At the same time it would be one step towards teaching us to rely for protection upon Government, and to a remission of the sleepless attention to his own interests which is the best education for being able to watch the interests of others, and which makes an Englishman not only a good tradesman, but a successful ruler at home and abroad.

In adhering to the principle of "every purchaser his own detective," it will be right, certainly, to give him every facility for being so. Those are his best friends who afford him such facilities. We can devise no way of doing this so little objectionable as that of vestries selecting (or perhaps being obliged by law to select) officers of health capable of making analyses of food and drink, and agreeing that they shall make them at a fixed price for all inhabitants of the district. In populous places this work might of itself bring in a good income to the officer. Dr. Hassall says that he could, by employing assistance for the rough work, guarantee between two hundred and three hundred examinations a week. At two shillings a piece this would give 1000*l.* a year to the analyst, and allow 250*l.* for laboratory expenses—enough to secure the services of a highly-educated man. If there was not sufficient work to occupy and support him, the ordinary duties and salary of officer of health might be added, or he might be a medical man and allowed to practice, or to take pupils. It may be observed, that while Dr. Hassall was the *Lancet* Commissioner, he was a hospital physician and lecturer, practised in private families, conducted analyses for other persons, and continued his literary labours as well; so it is evident analytical work may easily be associated with that of another description.

When the party interested had got his analysis, he might use his own discretion as to whether the importance of the adulteration would justify him in getting a summons, and following up the case in the method which the application of the principles of the Bread Bill to other objects would enable him to do.

It would be perhaps desirable to enter the results of the analyses in a record open to the inspection of the parishioners: but except where the case had been proceeded with, it may be questioned whether the publication of them in the public journals, as advised by several witnesses, would be judicious. There is nothing in it discordant with the spirit of English legislation, for it is simply a modern application of the exposure contemplated by our forefathers. But still there is danger of the punishment pressing unequally; and it is also exces-

sively severe, amounting in some cases to undeserved ruin. The "Statute of the Pillory and the Tumbrel," quoted at the beginning of this article, was followed shortly by another, cautiously prescribing the mode of application, lest the vertebra of the king's lieges should be overstretched; so, probably, it would be necessary to take immediate care that the pillory of the periodical should not be too straight, the dung-cart of the daily paper not too stercoraceous.

It may be said—and the argument appeals to our best feelings—that it is impossible for poor persons to spare the time and money, or to gain the information requisite for this attention to their interests. A *reductio ad absurdum* might be made, by picturing a labourer at two shillings a day spending the whole of it in getting analysed the loaf which he has obtained on credit, and starving while attending the magistrate's leisure. But what is to prevent the union of the working classes into committees, clubs, and benefit societies for this object? Their combinations have often hitherto been led by ignorance to do most foolish things; but the best way to prevent this, would be to give them right objects, not to try and put them down. The latter attempt must always be a failure, so long as "man is by nature a clubbing animal."* Time and civilization have done much, and it is comforting to see the improvement that has taken place even in the aim at utopian schemes. Compare, for instance, Wat Tyler's agitation against taxes, or the bread rioters of the present century, with the delegates from the last strike meeting to confer at the Society of Arts. And that these men can unite also for the very purposes now under discussion, is shown by the Blue Book in our hands. Among the witnesses examined are the foreman of the "People's Flour Mill" at Leeds, and the book-keeper of the "Rochdale Corn Mill." Both are societies set on foot and directed entirely by artisans for some years, with the object of securing good bread for their own consumption. And if they could unite to manage the large capital embarked in such undertakings, they could surely subscribe and administer the few pounds required for analyses and prosecutions. Self-reliance is the best lesson we can teach our countrymen, and he is a truer patriot and more conscientious statesman who bids us put our own shoulders to the wheel, than he who earns temporary popularity by himself lifting our cart from the rut.

We come now to the adulteration of DRUGS, and have at the outset to regret that this question should have been by the Parliamentary Committee mixed up with that of food. They stand on quite a different footing. If food is noxiously contaminated, the offended taste and smell give warning; but of drugs the natural qualities are abhorrent, and that patient must be a very unfortunate one who is by experience a competent judge of goodness. If food is diluted, our appetite prompts us to compensate the fraud by eating more; but with drugs dilution is death. If the specific quantity ordered is too weak for the contemplated purpose, it may be too late to rectify the error when it is found out by its consequences. It is therefore of

* "ἄνθρωπος φύσει πολιτικὸν ζῷον."—Aristotle's Politics, Book I.

vital importance to parties concerned, that extreme accuracy and equality of strength in active remedies should be attained, and purity here is no pedantry.

We are dealing with a trade of very limited extent as compared with the supply of food; and exceptional measures applied to it are quite consistent with a protest against a more general interference with commercial principles. Again, an augmented cost in the raw article affects essentially the retailer of food; it is a large part of the payment he gets, because his labour is but slightly skilled; but to the highly educated compounder of medicines the price of the drugs matters little, it is a very small fraction of what he charges for his presumed knowledge and trustworthiness. Again, a slight rise in the price of food would be the death of thousands; a considerable increase in the value of drugs would seldom even be known to the consumer.* It is clear, then, that an interference with the trade in drugs could not appreciably affect the purses of either retailer or customer.

On these grounds a detective inspection of chemists' and druggists' shops may be fairly advocated, if a case is made out of either diluent or noxious adulteration existing to any important extent. For it has been shown that dilution and danger to life are here convertible terms. And the case does appear to be fairly made out by the universal consent of all who have examined the subject. It is true that some highly respectable large drug dealers deny before the committee their cognisance of adulterations being now carried on by wholesale houses, and everybody believes the witnesses. But even they confess that a few years ago, when they were young and struggling, the practice was common (evidence of Messrs. Baiss, Bell, Allen, Atkinson, Bastick); Mr. Drew, though he thinks the prevalence of adulteration has been exaggerated, believes that inferior drugs find their way to the provincial wholesale houses, and through them to the retailers and public; and Dr. Bingley confirms the fact of small dealers practising the fraud. But the revelation made by Mr. Wakley, of what took place when he was articled pupil to a druggist in Somersetshire, is alone enough to alarm a patient to his danger in a country where such practices are possible, and where, in witness's belief, they have been increased among the smaller traders since the period alluded to, along with the increase of science and the publication of the processes. It appears that the chief wholesale business of this sadly immoral house, was to send sham drugs to London. For example, "———'s Ver-

* The slight degree to which the price of drugs affects the interests of the sick may be illustrated by a few simple facts. In the four years and a half ending Dec. 31st, 1855, there were treated at St. Mary's Hospital, 43,405 patients, at an expense of 1602l. for drugs, herbs, leeches, and dispensary sundries—that is to say, for an average of less than ninepence a-head. And this was in spite of medicine of a most costly kind being used when requisite, although "atropine," at four pence a grain, appears as one item, and "Pondault's pain," as another, in the last bill. Now such of these as were in-patients cost the hospital an average of more than two pounds for food alone, exclusive of wine, beer, nursing, lodging, medical attendance, and other things, amounting to about three pounds more. It is evident that doubling or quadrupling the cost of drugs would make less difference in the expense of an illness than adding a farthing to the price of a quartern loaf.

digris" consisted entirely of sulphate of copper and acetate of lead; "Annatto," of turmeric, lime, red paint, and soap; "Calomel," of white precipitate and sulphate of lime; "Burnt sponge" of charcoal and salt. One cannot be surprised at Mr. Wakley leaving the drug trade, and the world must be congratulated on his having the boldness to reveal the secrets of his former prison-house.

Now, if such things can be done by even "provincial" or "inferior" wholesale houses, what is likely to be the practice among the thousands of small straggling country retailers? Are they more likely to purify their drugs, or to save a few pounds out of their quarterly accounts by further diluting their stocks?

Even in London, Dr. Hassall found of twenty-three samples of gum opium, nineteen adulterated; of forty samples of powdered opium, thirty-nine adulterated; of twenty samples of scammony, two only were genuine, one entirely factitious, and the rest variously diluted with sand, wood, gum, and flour, to the extent of from 18 to 65 per cent. Among thirty-three specimens of jalap, fourteen were impure. In the same number of ipecacuanha powder, eighteen. In this last case decisive evidence existed that the sophistication was not mere dirt or carelessness, for the utterly extraneous matter, *tartar emetic*, was found. Colocynth contained chalk, rhubarb and squills contained flour, &c., &c. The danger to life involved in the uncertainty of dose thus entailed is so obvious and pressing, that we cannot be surprised at the demand for immediate coercive measures over a trade where the temptations to fraud are so strong, and are actually extensively yielded to.

A hope is expressed by some witnesses, and by the Report of the Committee, that the laudable efforts of the Pharmaceutical Society to diffuse scientific knowledge among chemists and druggists will prevent fraud by introducing a better class into the trade. It has effected some improvement already; and there is no doubt that if a customer understands how to choose a tradesman, he will find in most large cities a member of the Society from whom he may be pretty certain of getting pure drugs. But too much must not be expected from mere education as a preventive of fraud; the criminal records of the last twelve months have given the country fair warning on this point; and the impression is gaining ground, that the more a man's intellect is sharpened, the more necessary it is to subject it to either the natural restraint of public opinion, or the artificial chain of the law.

It is right that the advocate of the inspective or detective system should propose some body capable of being entrusted with such an exceptional power—a power of which Englishmen are so justly jealous. Should it be given to the Pharmaceutical Society? Gratitude is due to them for their diffusion of science, by which they have advanced and are advancing the position of their trade, till it stands almost on the level of a profession. But the experience of modern Europe is against the once prevalent "guild" system, by which each trade was entrusted with the police of its own members. Its interests are too much to diminish numbers and increase profits, to the detriment of

commerce. Though, as a conservative people, we retain the system in a few cases under restrictions, there would be an unwarrantable anachronism in creating a powerful "guild" in the present day.

Another proposed body is the Board of Health, or some other Government bureau, on a footing similar to the "Conseil de Santé Publique," consisting of eminent scientific characters appointed by a Home Secretary. Such an authority would be quite new, and not entirely unexceptionable. It would have a strong temptation to a kind of pedantic purism, which would interfere as much with "mint and anise and cummin," as with the "weightier matters." Sugared honey or woody liquorice would be as severely visited as chalky calomel or starchy quinine. This is what actually happens abroad. M. Chevallier tells of a Spanish druggist who was fined 9000 ducats and deprived of civil rights for a year, for putting sugar and starch into manna. Among the counts in the indictment against the French pharmaciens in 1850, was one for adulterating *onguent de peuplier* (a mere scented pommade) with balsam of Peru. In 1852, at Paris, Madame R. was condemned to be imprisoned three months, to the costs of the suit, and a fine of fifty francs, for selling syrup of capillaire containing, some indeed, but "too little," of that inert plant. In 1850, a chemist was fined 1000 francs and imprisoned eight months for making orange-flower water with oil of neroli. The selling of artificial seidlitz water in stone bottles, even though the label was not imitated, was punished by a fine in 1847. But the favourite subject of prosecution in Paris is *Sirup de Gomme*; twenty victims of heavy fines exacted in 1849, 50, 51, 54, for making it of glucose, are quoted by M. Chevallier, who says he could add largely to the list of convictions for the harmless substitution of potato-sugar for cane-sugar.

Yet in spite of this prudery, some really powerful drugs are commonly sold in France of strengths more dangerously various than in this country, and no notice appears to be taken. For example, scammony, as analysed by M. Thorel, contained from 6 to 84 per cent. of its active resin; whereas, in Dr. Hassall's examinations, the range was only from 13 to 79. Mention is made by M. Chevallier of modes of imitating jalap, ipecacuanha, rhubarb, &c., but no prosecutions seem to have been instituted on their account, and only one instance of a fine exacted for falsifying opium. The fullest details for the purpose of comparison are found about scammony, and judging from that, it may be surmised that all the adulterated drugs of which samples are analysed by Dr. Hassall, might have been sold with perfect impunity across the Channel. So adhesive is the *sirup de gomme* to the fingers of the police, that they appear incapable of handling more important substances.

No great advantage can be hoped from an inspection of the drugs at the outports, as proposed by some. The principal places of adulteration seem to be the grinders' mills and the provincial dealers, which of course would not be interfered with by this plan. Besides, it would prevent the importation of many inferior descriptions of drugs, which are useless indeed, and improper for sale in their impure

state, but which contain a certain quantity of the active principles, and may be made available for pharmaceutical purposes. Again, the expense of the reintroduction of strict examination at the outports would be enormous. It must be remembered that we have introduced free-trade, remitted the duties, and disbanded most of the collectors who would take cognizance of these articles; whereas the United States, from whence it is proposed to imitate this system, are still in the enjoyment of protection, and have ready made a protective army of custom-house officers. They have got a machinery which our economists have been labouring for some years to break up bit by bit, and it would be a pity to reconstruct it without necessity.

The most practical scheme seems one of which the embryo already exists in London and Dublin—namely, the placing a power of visit in the hands of a medical corporation, altogether unconnected with the drug trade. It is their interest that drugs should be plentiful, pure, and reasonable in price; they can have no object in hampering commerce, and as each article is valued in their eyes solely in proportion to its medicinal activity, no over-busy purism need be feared from them. Besides, as they are already viewed by the retailer of medicines as the guardians of the consumer, there would be less jealousy of their inspection than would be the case with any other authority. The embryo alluded to in London is the power possessed by the College of Physicians of inspecting chemists' shops in the City. Its censors exercise this authority twice a year, by selecting some retail establishments whose drugs they examine, and, if they are adulterated, throw them into the gutter. But as the censors are not paid for the time so spent, and have plenty of other engagements, the good done must be very partial. At Dublin, a similar power resides in the Irish College of Physicians of visiting shops where medicines are compounded, and of publishing the names of offenders against purity. According to Dr. Neligan, the local Act which gives them this power is to a certain extent efficient and popular. But want of remuneration again paralyses the executive.

It will evidently be necessary to provide a fund of considerable amount to pay the expense which would be incurred by a medical corporation becoming responsible for the due visitation of chemists and druggists throughout the kingdom. Probably no fairer mode of doing this can be devised than to throw the burden on the parties to be benefited—the consumer and the shopkeeper. The former would receive the advantage of a more valuable article, and the latter be freed from the competition of dishonest rivals. Such a distribution of the expense would be equitably effected by making all compounders of medicines pay a small tax for a licence, renewable annually. This sum he would of course be repaid in the price charged for the goods. Whether the visitors should themselves hold a court for the granting of licences, or should give certificates for that purpose to Quarter Sessions, is a matter of detail of no moment; but a plan grounded on these principles would certainly more than any other secure the confidence of the medical profession and their patients.

A very important aid towards the proposed object would be given

by a revision of the Pharmacopœias, with the special view of securing, not so much superior quality, as accuracy and equality of strength in active remedies. One great and not difficult improvement would be the expulsion from prescriptions of articles known to be of various qualities in commerce. Why, for example, should the oft-quoted raw scammony be used at all? Why should not *scammonium* be defined to mean the active resin of the plant, while the English *scammony* remains as the commercial designation? Then those who wished their patients to find certain results follow the medicine, would write *scammonium*; those who wished them to take the chance of having sometimes 6 per cent., and sometimes 80 per cent., of activity in the powders, could order in English. The same remark would apply to jalap and several other vegetable matters, found, by all parties who inquired, to be sold of most various strengths, not by the wilfulness of the dealers, but because they are so produced by nature.

The carrying out fairly and consistently these and a few other simple expedients, which would naturally suggest themselves to a medical corporation, would in a few years secure to England a purity of drugs not only equal to other countries, for that she appears to have already, but equal to her civilization in other respects.

Before we conclude this Article, it is proper to make a few remarks on a fear that has been expressed, and among others by Mr. Wakley, that the agitation of the subject, and the diffusion of knowledge about it, has a tendency to increase adulteration. He urges this as a reason for some immediate legislation. Now we should not object to immediate legislation, if cautious; but we must demur to the grounds on which it is asked. The general diffusion, and the popularization of knowledge, such as is contained in the books here quoted, is most useful, and conduces to arrest the evil. Does a publication of the tricks of card-sharpers and thimble-riggers augment their profits or guard the simple against them? Surely the latter. Manuscript books of modes of adulteration appear from the statements of several witnesses to have been very recently kept by manufacturing druggists; these of course were secretly handed over with the goodwill of the house; and very likely still more precious secrets were transferred *visâ voce* from father to son, and from partner to partner. But the revelations of traitorous science, the true Zaphnath-paaneah, have now put the customer equally in possession of the knowledge, and it is his own fault if he does not use it to his advantage.

It must not be supposed, even, that the publication in print of modes of adulteration is a new thing, the evil consequences of which should require us to be in a hurry to guard against them. Beginning with Colin at Tours, in 1513,* and Lodetto at Brescia in 1569,† M. Chevallier enumerates eleven authors on the subject before the present century. And from this list probably a good many are omitted, whose works, valuable when first published, have been obscured by advancing

* Histoire des Drogues, &c. A second edition is in the library of the College of Physicians.

† Dialogo de gl' Inguanni d'alcuni Malvaggi speciall. In the library of the Medico-Chirurgical Society is also a later edition.

science. Cordus, for instance, is not named, whose 'Dispensatorium,' published in 1598, contains a complete list of the adulterations of drugs and some articles of diet (such as sugar), with practical directions for detecting them by their physical properties. During the French revolutionary period, the dreadful mania for commercial swindling, so graphically described by M. Goncourt,* gave an unexampled activity to every kind of fraudulent sophistication. The consequence, not the cause, was the translation of Remer's work by Bouillon Lagrange, in 1816, and the appearance of many more French writers, of whom a list is given in the preface to the 'Dictionnaire.' The most valuable previous to the work under review, seems to be the 'Traité des Moyens de Reconnaître les Falsifications des Drogues simples et composées,' by MM. Bussy and Bourtron-Charlard.

So that even if he did not come into MS. knowledge by inheritance, any manufacturer who could get a foreign book translated for him, need never have been at a loss to know what articles to use for adulteration, and what his customers are likely to find out. The advantage of the modern works over the older is, that while the latter simply enumerate the methods of fraud, and give a customer data by which he may detect it, the former put him in possession of accurate means of ascertaining not only the presence, but the amount also, of the enemy—an important consideration in distinguishing the real guilty adulterations from the innocent. Instead therefore of being frightened at the recent multiplication of that literature, of which there are quoted in the heading two of the most commonly known examples, we cannot but consider it a safeguard of continually increasing value. M. Chevallier's volumes have been translated into German, with valuable additions by Dr. Westrumb at Göttingen, and it is probable that an English version would be well received both in this country and in America, especially if it were brought up quite to the scientific knowledge of the present time.

REVIEW VI.

1. *History of Medicine from its Origin to the Nineteenth Century; with an Appendix, containing a Philosophical and Historical Review of Medicine to the Present Time.* By P. V. RENOUARD, M.D. Translated from the French by CORNELIUS G. CONEGRYS, M.D., Professor of the Institutes of Medicine, Miami Medical College.—Cincinnati, 1856. 8vo, pp. 719.
2. *The Medical Profession in Ancient Times: an Anniversary Discourse delivered before the New York Academy of Medicine, November 7th, 1855.* By JOHN WATSON, M.D., Surgeon to the New York Hospital. Published by order of the Academy.—New York, 1856. 8vo, pp. 222.

THAT an acquaintance with the chief particulars in the History of Medicine from its birth or origin, onwards, should be regarded as an

* Histoire de la Société Française pendant la Directoire. Paris, 1854.
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indispensable complement of the well-informed physician or surgeon, probably all will be found willing to acknowledge. When, however, we consider what means have been employed, and what facilities provided, to enable the earnest student of his profession to overcome the difficulties, and to assist him in the research and observation so requisite for obtaining a satisfactory knowledge of this subject, we find few landmarks to guide him. In it our English literature has been hitherto far from varied or accurate, while, complete as the opportunities for the instruction of students of medicine by lectures have become in every other essential department, in this they have been at all times acknowledged as deficient. To a certain extent the neglect of the History of Medicine, as an important subject of professional instruction, has prevailed in other countries than our own; but, considering the fame which Great Britain has acquired in the cultivation of Scientific Medicine, it is impossible to suggest this as an excuse for an essential element of the physician's and surgeon's education being overlooked. Strictly speaking, indeed, the great medical schools of our country are in this particular very greatly behind those of the Continent; for though the study of the History of Medicine is nowhere among the latter prescribed as imperative, in Paris, as well as Berlin and other German cities, lectures upon it are delivered; while even at Athens, in no degree famous as a medical school, the History of Medicine forms the subject of a distinct course of lectures. Apart altogether from the interest which necessarily pertains to a subject extending, as the History of Medicine does, from the very earliest to the present time, occupied with almost every country and nation of men, not excepting the rude and uncivilized, a knowledge of Medical History is calculated to secure the establishment of what alone is true, or at all events well founded; and that physician or surgeon who has undergone the additional mental culture it implies, is undoubtedly in a better position for the avoidance of error and for the rejection of unsound views. The consideration of the doctrines, theories, and practice of former races of physicians and surgeons, interesting as they must be, will also be eminently serviceable; and for the physician and surgeon now, we can conceive no duty more agreeable, and none more profitable, than the contemplation and comparison of the views of their predecessors. Such was the habit of the illustrious and the learned Scarpa: "Fu mai sempre mio costume nell'esercizio della chirurgia di confrontare le mie osservazioni con quelle dei più accreditati Maestri dell' arte che in ogni età fiorirono."*

We have spoken of the deficiency of our English literature upon the subject of Medical History, and, compared with that of France or Germany, it is indeed limited. We possess no such large or complete works as those of Le Clerc, Portal, Sprengel, Hecker or Haeser. In our language, the smaller works of Friend—which in some respects may be regarded as a continuation of Le Clerc's—Hamilton, Walker, William Black, and Moir, are those hitherto chiefly known and consulted. The absence of any complete and altogether trustworthy

* Trattato delle principale Malattie degli occhi.

guide to the English student of Medical History must not, however, be considered to argue the want of individuals from time to time qualified for the duties of its authorship. Though we possess no extended History of Medicine, there are many admirable works in our language upon particular branches of the subject, greater or smaller, while the recent appearance of Dr. Wise's learned work on Hindoo Medicine,* and the various highly interesting contributions of Dr. Simpson, in illustration and elucidation of Greek and Roman physic, prove that with us an increased attention is being directed to it. Of late years, too, the indefatigable labours of Daremberg and Littré, in France, of De Renzi and the late Professor Vulpes at Naples, throwing light upon previously dark and obscure periods of the History of Medicine, and bringing to light in all their excellence the treasures of its ancient and forgotten heroes, have been worthily followed by Greenhill, Adams, and others, in our own country.

It is expressly from the conviction of the deficiency of the English language in works on the History of Medicine, that we are indebted to Dr. Comegys for the excellent translation of the comparatively recent work of Renouard, the title of which is placed at the head of this article. With it we have associated the very able discourse on the Medical Profession in Ancient Times, by another American physician, Dr. John Watson—an essay which we have perused with much pleasure, and which is calculated to shed additional lustre on the distinguished body before whom it was delivered. It is not a little remarkable that for these, the two most recent additions to our historical medical literature—one original, the other a translation from the French—we have to thank our American brethren. Aided by the labours of Dr. Watson and M. Renouard, and appealing to the writings of others, we shall endeavour to signalize what, in our opinion, are some of the chief points of importance and of interest in one of the most instructive portions of the History of Ancient Medicine, whether regarded by the enlightened practitioner or the student of medicine. Our readers may perhaps be inclined to start at the magnitude of the task we have thus proposed to ourselves, but in the present article we have no further object than to enlist their sympathies in the scheme of making instruction in the History of Medicine to be regarded as an essential of professional education, in something of the same light as the History of the Church is looked upon in schools of divinity. How much is due to the early cultivators of our science—how great the debt we owe to Hippocrates, for example.—can only be truly appreciated by him who has made the History of Medicine, antecedent to its great father and since his time, the subject of careful study.

It is interesting to observe how in all ages the question of the probable origin of medicine has occupied the attention of those who have themselves advanced the science. That, indeed, may be traced back to the very infancy of the human family—to a period regarding which we have no historical account, and possess only what Sprenger terms *fabelhafte Ueberlieferungen*.† Into the speculations which this inquiry

* Termed by Haeser, in his 'Lehrbuch der Geschichte der Medicin,' "eine sehr gediegene Arbeit."

† Versuch einer Pragmatischen Geschichte der Arzneikunde. Erster Theil, p. 19.

has given rise to, we shall not enter, though at many times it has been discussed with very great learning, talent, and acuteness. Van Helmont, in his remarkable work, entitled '*Ortus Medicinæ*,' &c., and Le Clerc, in the work already alluded to, '*Histoire de la Médecine ou l'on voit l'origine et les progrès de cet Art, de siècle en siècle*,' &c., may with much advantage be consulted; and not less so the remarks in the treatise '*On "Ancient Medicine*,' one of the Hippocratic collection. That the origin of medicine may legitimately be traced to motions of the human intellect, and need not be attributed, as some have attempted to do, to a direct divine communication to man, is rendered probable from the circumstance that a variety, rude indeed, and oftentimes most uncouth, of medical and surgical practice has invariably been found to exist in newly-discovered countries, even though at the period of their discovery these have been sunk in the most degraded barbarism. Judging from this fact alone, we should feel inclined to adopt the opinion that medicine in its origin was coeval with man, or, as Le Clerc has observed, "*Le premier homme a été en un certain sens le premier Médecin.*"*

We cannot in this article devote space to the consideration of Primitive Medicine—a subject which, though possessing much intrinsic interest, has only that charm to reward our speculation, as it cannot be maintained that the progress of mythological medicine among the Hindoos, Chinese, and other nations, has any intimate relation with the real advance of our science. If we turn to ancient Egypt, a country in which we know the arts of civilized life to have been very early cultivated, there can be little doubt that the profession of medicine existed in it. The first physicians of Egypt were the priests; of their practice, and indeed of the constitution of their order, the knowledge we possess is limited; but this we do know, that medicine in Egypt was blended with superstition, and mixed up with all kinds of religious and fanatic observances. It was practised by a sect of the priests known as *παστοφόροι*, on account of the long vestures which they wore, and because they were employed on certain ceremonial days in carrying the bed of the goddess Venus. These medical priests, we have reason to believe, were treated with great respect, and this we can the more readily understand when we consider that the occurrence of diseases was viewed by the Egyptians, just as it was afterwards by the early inhabitants of Greece and Italy, as a direct manifestation of the displeasure and interposition of their deities, and being thus assured they would naturally look to the ministers of these deities, the officiating priests of their temples, to be the means, if only indirectly, of procuring their removal. In this way it probably was that the priests of Egypt became Egypt's first physicians. That a subdivision of labour existed, that something resembling the specialities of the present day obtained among the Egyptians, we learn from Herodotus.

"The art of medicine (he says) is thus divided amongst them; each physician applies himself to one disease only, and not more. All places abound in physicians; some physicians are for the eyes, others for the head, others

* *Histoire de la Médecine. Première partie, p. 7.*

for the teeth, others for the parts about the belly, and others for internal disorders.”*

The embalmers, whose handiwork has itself made Egypt famous, and has astonished and perplexed modern nations, probably were included among the medical priests. Of them Dr. Watson remarks, that,—

“Their occupation must have rendered them familiar with the internal structure of the body, and furnished them with useful insight into the nature, causes, and results of diseased action.” (p. 16.)

For our own part, we confess that the account Herodotus† gives of the operation of embalming—the brains being drawn through the nostrils by an iron hook, and the incision in the side being made by means of a sharp stone—leads us to the belief that notwithstanding the frequency with which the operation of embalming was performed, little satisfactory knowledge could be gained from it. Indeed, it appears to have partaken much more of a religious than of a medical character, and was very probably not performed by the same class of priests who were charged with the treatment of disease. It is true that we read in Genesis, fiftieth chapter, “And Joseph commanded his servants, *the physicians*, to embalm his father: and *the physicians* embalmed Israel.” But various learned commentators on this passage in the Old Testament, and among others, Bishop Kidder, have regarded the Hebrew word translated physicians to signify those merely to whom the care of embalming belonged.‡ Contemporaneous with the Egyptian there was another nation, of whose history in many important particulars the sacred writings authoritatively inform us, concerning whom and whose institutions, therefore, we are not left in the same degree of doubt. We know that civilization with its attendant improvements and advances in the arts and sciences, had made very considerable progress in Egypt before the family of Israel, compelled by famine, were driven to take refuge there. And such being the case, we would naturally expect that the Jewish people, from their contact and intimate relationship with the Egyptians, during fully four hundred years, would receive from them much of that knowledge and skill with which they were endowed. In the writings of Moses we find abundant proof that, as in the case of the Egyptians, the Jewish priests were originally the physicians. It was to the Levites the people applied when affected by leprosy; from them the infected sought a cure; it was the priests who determined what individuals and families were to do.

“When a man shall have in the skin of his flesh a rising, a scab or bright spot, and it be in the skin of his flesh, like the plague of leprosy, then shall he be brought unto Aaron the priest, or unto one of his sons the priests; and the priest shall look on the plague in the skin of the flesh; and when the hair in the plague is turned white, and the plague in sight be deeper than the skin of the flesh, it is a plague of leprosy, and the priest shall look upon him and pronounce him unclean.”

In this passage of the thirteenth chapter of Leviticus, and in what follows in that and the succeeding chapter regarding leprosy, we have

* Herodotus: Enterpe, cap. 84. † Enterpe, c. 86. ‡ D'Oyley and Mant's Bible.

a striking example of the power committed to the priests: they decided as to the nature of the disease—leprosy or not; and consequent on that decision was the course which they again ordered to be followed and observed. Nor is it in connexion with the disease of leprosy merely that the medical functions of the Jewish priests is exhibited. Regarding the precepts contained in the twelfth and fifteenth chapters of Leviticus, Renouard truly observes, that after their perusal, “one cannot repress a sentiment of admiration for the wisdom and foresight which made such salutary regulations a religious duty.” (p. 33.) How long the Jewish priests continued to be physicians also, we are unable accurately to determine. In the Apocryphal book of Ecclesiasticus, 38th chapter, which has, from its style, been attributed to Solomon, but which, in any case, was written two hundred years before the birth of Christ, mention is for the first time made of the office of physician apart from that of priest.

“Honour a physician with the honour due unto him for the uses which ye may have of him, for the Lord hath created him. For of the Most High cometh healing, and he shall receive honour of the king.”

Passing now from this rapid glance at the condition of medicine in Egypt and among the Jews, we have to view it in Greece, still mythical and priest-ridden, antecedent to the Trojan war, and to that period in which, among the Greeks, we find materials the most ample and the most instructive for the history of medicine. Here it is unnecessary to follow the example of *Le Clerc* and *Sprenghel*, and trace the history of the medical mythology of Greece, or even to mention the names of the numerous gods and goddesses, heroes or heroines, who were regarded as the inventors or cultivators of the various branches of medicine. Some of these—as *Thoth*, whom the Greeks called *Hermes*, and *Isis*—were borrowed from the Egyptians, others were of purely Grecian origin.

Leaving the period of mystic and primitive medicine, and in order to form a proper estimate of what the genius of *Hippocrates* effected for our science, we may now briefly inquire into the condition of medicine antecedent to the birth of him who has in all ages been truly regarded as its father, limiting this inquiry still further by directing our present attention to the temples of *Æsculapius*, which, as *Dr. Watson* observes, “notwithstanding the speculations of philosophers, and the trainings of the *Palestræ*, were the first great foundations of medical knowledge among the Greeks.” (p. 35.)

The priests of the temples of *Æsculapius* or *Asclepiadæ*, knew well how to take advantage both of natural situation for their erection, and of the respect—amounting, indeed, to a feeling of veneration—with which they were regarded by those who sought their precincts. *Cabanis* has well observed, that—

“Many cures must have been accomplished by the diversion which the patients experienced in their journeys to these temples, by an exercise to which perhaps they had been but little accustomed; by the invigorating effects which an elevated situation produces on man, and indeed upon the generality of animals; and lastly, by the still more invigorating effects of hope.”

But besides such methods of securing or promoting health as have now been referred to, and which may be classed under the head of Asclepiadæan hygiene, there is reason to believe that the priests of the temples or Asclepiions resorted to various means of cure, according to their notion of the particular ailments under which the patients who consulted the divinity laboured. The Asclepiads we know prescribed bloodletting in certain cases, purgation or vomits in others, while friction, sea-bathing, and the use of mineral waters, were other remedies they often employed. Beyond all this, and exercising as it no doubt did a most powerful influence on the sick and on the sick folks' friends, was the mental influence which the doctor-priests of the temples knew only too well how to produce. Admission to the temples was forbidden to such as had not previously undergone certain means of purification; and when entrance was effected, the interrogation of the oracle was frequently delayed. Sometimes a day or a night, or two nights, were first spent, the patients meantime lying in the temples. Abstinence, prayers, fasting, sacrifices, followed. After all these preliminary rites had been gone through, and after the immolation of a ram or of a fowl, or, as at Cyrene, a goat, or at one of the other Asclepiions any animal save this last, the will of the oracle was craved, and the response communicated by the priests.* At times but mysterious and uncertain information was conveyed. Sometimes the divinity deigned to appear under the form of a serpent devouring the cakes upon his altar; more frequently the eyes of the faithful and wondering sick were not treated to so close a manifestation of his presence. At certain times and on certain occasions the will of the god was communicated in dreams, and these were interpreted by the priests. The importance attributed to dreams, even at a later period, may be judged of by a perusal of the Hippocratic treatise "*περί εὐννίων*."

The chief, and at the same time the most celebrated temples of *Æsculapius* were those at Epidaurus in the Peloponnesus, at Pergamos in Asia, at Rhodes on the island of Cos, at Cnidos, and at Cyrene, a city of Lybia. Besides these, there were numerous others, both in Greece proper and in the Grecian dependencies. Schulze, under the head of "*Notitia Asclepiorum*," mentions and describes alphabetically little short of a hundred.† It was customary for the priests in the Asclepiions to report to new comers the history of the extraordinary cures which had been effected for former invalids, and particularly to signalize those cases which appeared in any degree to tally with theirs. The walls and pillars of the temples—and this is especially known to have been the case in those of Cos and of Cnidos, which was burnt in Hippocrates' time—were covered with inscriptions, detailing in shorter or longer terms the history of the diseases and the nature of the remedies which had at the advice of the deity been employed in these cases. Metal, marble, wood, stone, may all have been used for this purpose, according, probably, to the circumstances of affluence or poverty

* It was a cock that Socrates (according to Plato), in his last interview with his friends, requested them to offer for him to *Æsculapius*.

† *Historia Medicinæ a rerum initio ad sanum urbem Romæ DCCCXV.*, p. 118.

in which the benefited parties were placed. Those who have visited the parish churches in the different Roman-catholic countries of the Continent, and more especially Southern Italy, will call to remembrance the manner in which the walls and pillars are covered by the so-called votive offerings, and will at once recognise in the ancient practice of the Grecian temples the quarter from which the latter may reasonably be assumed to have sprung. Scanty as the information was that these tablets conveyed, and better calculated, as they no doubt were, to fortify the piety of the faithful, than for any great end in the advancement of science, still we feel disposed to agree in the reflection of the learned author of the '*Revolutions of Medical Science*,' that—

"However imperfect these descriptions of diseases and of their methods of cure may have been, their collection was nevertheless very valuable. They formed, as it were, the first rudiments of the art, and discovered some faint traces of the method of observation and experiment which alone is capable of placing it on a solid basis."

Antecedent to the time of Hippocrates, to which we have now to turn, a great revolution had been effected for medicine by the first or early philosophers, and of these Pythagoras, Heraclitus, and Democritus were the chief. Into the consideration of their particular views we cannot here enter, but it is only due to these philosophers to accord to them the merit of having secured in great measure for medicine its release and freedom from superstition. "They," says Cabanis, "transformed an occult and sacerdotal doctrine into a popular science, into a common art." In the four hundred and sixtieth year before the birth of Christ, Hippocrates, according to very general belief and expressed opinion, was born. Of the personal history of Hippocrates we know but little; that little, however, is so familiar to all, as to render it unnecessary here to recount it. As regards not a few of the particulars of his life and education, as well as of his doctrines and practice, differences of opinion among those who have made such the subjects of a peculiar and attentive study has prevailed;—to these Dr. Watson and M. Renouard allude, and we conceive that it would be the duty of a lecturer on the History of Medicine, after a careful investigation of the views entertained by all competent authorities, to unfold them; for assuredly it may at once be conceded that anything relating to the history of Hippocrates—"that divine old man," as Sydenham has expressively named him—is worthy of attentive consideration. When we consider the age in which Hippocrates lived, that at the period in question anatomy was scarcely practised; that physiology was virtually unknown; that with the exception of a few articles in the vegetable materia medica of Greece alone, was he able to find remedies wherewith to combat diseases, though it was in the operations of Nature herself he chiefly confided: in the contemplation of his life and labours, surely we find abundant proof of his genius and true greatness. What was known before his time was small indeed, not entitling medicine to be dignified by the name of a science. The consideration of what, during subsequent ages, has been added to the stores of knowledge he collected—what has been taken from these stores

as inaccurate and unimportant—leads to the conviction which has in all ages been acknowledged, that by Hippocrates an era in medicine was formed. It was the power of observation which he so largely possessed, and so conscientiously employed, which caused Hippocrates to differ from all who preceded, from many physicians who came after him—joined to his high intellect, his exalted morality, and kindness of heart—it was this observing power that made him what he was. It is impossible to read a page of the genuine writings of Hippocrates, to peruse a single case, without being struck with the truth of this remark. The observation of individual cases of disease, the recording of these, marking the changes undergone daily, sometimes oftener, may have been, indeed very probably was, suggested to Hippocrates by the votive tablets deposited in the temples of *Æsculapius*; but upon this, as Dr. Bostock* has well observed, “he so far improved as to be entitled to the merit of an inventor.” And what was his invention other than the discovery of the method by which medicine is best studied, the patient is best ameliorated, the knowledge of the physician most extended? In all subsequent ages, too, this method gradually ripening to perfection, which it seems in our own day to have actually attained, has been regarded as the best for teaching an acquaintance with medicine, clinical medicine—the study of individual cases of disease at the bed-side—had in reality its origin in and from Hippocrates. Again, Hippocrates was the first who carefully watched the “*juvantia et lædēntia*,” as they have since been termed. He narrowly noticed the effects, good or bad, of his remedial applications, and endeavoured to remove or palliate individual symptoms. In this particular he was no less a discoverer than in the former, and what he did then, the wisest and the best informed physicians in all ages since have continued to follow him in doing.

Such were the chief improvements which Hippocrates introduced into, or effected for medicine; he pointed out that the first and great aim of the physician is to watch the operations of nature. He demonstrated the worthlessness of crude theories, and established incontestably that observation is the sole basis or foundation of medicine. The healing art in the hands of Hippocrates was, by his genius, and his genius alone, raised to the dignity of a science of experience and of facts. That distinguished position once acquired for medicine has never been lost. Regarding medicine “as a principle of humanity, and not merely as a means for attaining profit and glory,” Hippocrates was not content to instruct those of his own family alone—the plan followed by the *Asclepiadæ*—in the precious truths he had himself acquired, and therefore he earnestly desired, and eagerly sought to communicate his knowledge to strangers, and to those who had no claims of kindred to interest him in them. In this respect we may regard Hippocrates as the first and the greatest of medical reformers. Actuated by his genius no less than by his humanity, he soon saw the propriety, the necessity, indeed, of breaking through the system of unphilosophical exclusion which confined the physicians of Greece, as it were, to a single family. Can we doubt that the bold determina-

* See his admirable article, prefixed to the *Cyclopedia of Practical Medicine*. •

tion he then formed, and the means he must have taken to carry it into execution, would procure for Hippocrates much odium, and array against him many enemies, particularly among the Asclepiads, whose hereditary, and as they fondly imagined, inalienable rights he had so ruthlessly assailed. And when he had effected the reform he aimed at, when not only the Greek, free from the trammels of an Asclepiadean oath, though rejoicing to subscribe the Hippocratic declaration contained in the *ὅρκος*; but the stranger, it mattered not from where, could avail himself of his instructions, and following these out, could devote himself to the practice of the healing art, we can only faintly imagine what may have been the thoughts which occurred to the mind, what the emotions which animated the breast of Hippocrates, not yet aged, and we can in some degree only comprehend the zest and the energy, as Le Clerc says, "*le ferment*," that would be thereby diffused among his pupils. Some of the pupils of Hippocrates became his most distinguished successors, and various members of his own family, more especially his son-in-law, Polybus, worthily supported the character he had acquired. To most of his contemporaries, perhaps Le Clerc is warranted in concluding, that the words of Hippocrates himself were appropriate, "*Qu'il y avait plusieurs médecins de nom, mais peu qui le fussent en effet*."* There can, too, be little doubt that the lustre of his great name very nearly, if not completely, obscured theirs. This period in the history of medicine differs in no respect from that of any other, for, as has always happened, not only in it, but in other departments of human knowledge, the advance in the science and the improvements which he introduced into practice seemed, as it were, sufficient for centuries, and for such a period, in no considerable degree, were these advanced beyond the limit of perfection to which Hippocrates had brought them. Mr. Moir has well remarked :

"It happened with Hippocrates in medicine, as with Chancer in English literature, that he not only far outstripped the age in which he lived, but left many succeeding generations without the hope of rivalling his excellences."

Into an examination of the Hippocratic writings it is foreign to our purpose to enter, but, as affording the ablest and most complete view of these, we beg to refer our readers to what has been written upon the subject by Dr. Greenhill,† Dr. Adams,‡ and M. Littré.§ Dr. Watson only does the latter justice, when he speaks of his examination of the whole collection as "most careful and searching."

Thirty years after the birth of the father of medicine, and just at the time when his fame was beginning to be spread abroad, a great philosopher was born whose name was destined to be known till the end of time; this was "the divine Plato," who, like Pythagoras and Democritus before him, and Aristotle shortly after, though not embracing the profession of medicine, applied himself to the study of

* *Histoire de la Médecine*, chap. xxxiii.

† *Dictionary of Greek and Roman Biography and Mythology*. By William Smith, L.L.D. Article, Hippocrates.

‡ *Admirable edition of the Works for the Sydenham Society*.

§ *Oeuvres Complètes d'Hippocrate*. Traduction nouvelle.

various things concerning the theory of medicine, and more particularly the economy of the human body, and the elements of which it is composed. No distinct treatise on medicine was written by Plato, but numerous references to it exist in several of his works. It is evident that he diligently studied the writings of Hippocrates, though in so far as the advancement of medicine by any new observation, or the suggestion of any reasonable theory is concerned, he cannot be said to have profited much by the study. But at present we cannot consider the doctrines of Plato and Aristotle, any more than those of Pythagoras, of whom we have already spoken. Regarding Aristotle, there is no doubt that the original character of his mind, the special advantages which he enjoyed, and the pursuits in which he engaged, rendered him better qualified than was Plato for conferring advantages on the science of medicine. The connexion of these two and other philosophers with medicine may be traced to the circumstance of a knowledge of its science having at that time been looked upon in Greece as one of the requirements of a polite or general education. In so far as anatomy and physiology are concerned, it will now be pretty generally admitted that they should form branches of that general stock of knowledge towards the attainment of which the liberally educated ought to aim; and it may not without reason be presumed that, were some general ideas in regard to the nature and treatment of diseases included in the category, we should find that the gratifying result of an increased reliance upon the skill of the thoroughly educated and competent physician, and of a gradual decline in the hideous refuge of quackery to which so very many presently resort, would follow.

As the father of medicine founded the science of medicine, so may his immediate descendants, more especially Thessalus, Polybus, Draco, and Prodicus, be said to have founded the first medical school based upon rational principles. It has been indifferently called the Hippocratican or the Dogmatic School, the sect of the Dogmatists. Belonging to this school was Diocles, of whom Galen frequently speaks in high terms, and who, along with certain other distinguished cultivators of medicine, is thus alluded to by Celsus: "Post quem Diocles Carystius, deinde Praxagoras et Chrysippus, tum Herophilus et Erasistratus, sic artem hanc exercuerunt ut etiam in diversas curandi vias processerint."* The two last named physicians were the most distinguished of those who adorned the Alexandrian school of medicine. The death of that renowned king, whose name the city received and still bears, occurred at the early age of thirty-two, about seven years after its foundation, and 324 years B.C. After this event the vast empire of the Macedonian conqueror was dismembered, and in the year 321 B.C., Ptolemy the First, surnamed "*σωτήρ*," half-brother of Alexander the Great, because son of Philip, became king of Egypt. He was the first of that dynasty of Greek kings in Egypt who conceived

"Truly a royal idea," says Renouard, "and worthy of the successors of Alexander, that of collecting together all the intellectual riches of the universe, and placing them at the disposal of studious men, who were desirous to use them for their improvement and the advancement of science." (p. 166.)

* Liber 1. *Præfatio*.

The library and museum of Alexandria, founded by the first Ptolemy, received under the patronage of his successors numerous valuable additions. The literature of all nations was to be found in the former. The library of Aristotle, at that time the largest private collection in the world, was acquired for it by purchase, till at length, according to Eusebius, the Alexandrian collection contained no fewer than one hundred thousand volumina or rolls. The Ptolemies, owing to the extensive commerce in which they engaged, were enabled to gather together, chiefly from the Indian Ocean and its shores, a multitude of plants and animals previously unknown and undiscovered, and these were submitted to the observation and investigation of naturalists. In this Alexandrian school, which the munificence of the Ptolemies founded and sustained, the science of medicine flourished; and it cannot be doubted that for several improvements we are indebted to its professors.

Anatomy and physiology received an impetus, which, undreamt of previously, must have filled with amazement those who witnessed the change effected—when Herophilus and Erasistratus, the two most renowned of the Alexandrian school, first openly practised the dissection of the human body. Upon the testimony of Celsus, it has been believed in all ages that vivisection was pursued by these two famous physicians. Celsus's words are, "*qui (Herophilus et Erasistratus) nocentes homines à regibus ex carcere acceptos vivos incidierint.*"* By some they have been praised, by not a few, as by Tertullian,† who in a curious passage styles Herophilus, "*ille medicus aut lanus,*" condemned on account of the barbarity of their procedures. For our own part we are unwilling to believe that, under the sway of so enlightened potentates as the Alexandrian rulers, such enormities were ever practised. There appears no occasion for regarding a statement resting on the authority of Celsus alone, though mentioned by Galen, and quoted by Cœlius Aurelianus and other authors, as an historical fact. It must be kept in view, that the performance of vivisection was brought as an accusation by Celsus against Herophilus and Erasistratus, leaders of the Dogmatic school—he himself evidently tending to the support of opposite opinions—and that, at a period long subsequent, similar accusations were repeated in the case of more than one of the earlier cultivators of anatomy. In the case of the latter, such accusations were without the vestige of a foundation to rest upon, and if not due to the malice and malignity of enemies, can only be ascribed to the scandal and tittle-tattle of busybodies, whose speeches, even though nowise meant, too often end in the propagation of what is slanderous and untrue. It appears to us as by no means improbable that Herophilus and Erasistratus, just as happened to the anatomists in more recent times, may, by the performance of some heroic operations, have given rise to the belief of their being engaged in proceedings which we naturally shrink from laying to the charge of men so deservedly famous in their profession. Concerning the personal history of these, the most distinguished of the Alexandrian professors, we know little that can be regarded as really accurate, but frequent allu-

* Liber 1, *Præfatio*.

† *De Anima*, c. 10. Ed. F. Oehler. Tome II. p. 571.

sions to their investigations, opinions, and practice are met with in Galen and in Cœlius Aurelianus, who was nearly the contemporary of Galen. The latter speaks in the highest terms of what Herophilus did for anatomy; and while Erasistratus also appears to have been an accomplished anatomist, the fame of his colleague has excelled in the practical part of their common profession.

No period of the history of medicine is more interesting than that of the establishment of the Alexandrian school. An important event occurred in the history of medicine soon after its institution.

"At this time (writes Celsus) medicine was divided into three branches—one which cured by diet, *victu*; another by medicines, *medicamentis*; a third by the hand, *manu*. By the Greeks the first was named *dietetic*, *διατηρητική*; the second *pharmaceutical*, *φαρμακευτική*; the third *chirurgical*, *χειρουργική*."

For the future, these divisions were distinct, and exercised by distinct parties, separate individuals. This was a great change. Previously, the same persons had acted in the capacities of physician and surgeon alike.

Shortly after the establishment of the Alexandrian school—that is, about three hundred and twenty years before Christ—the formation of the two rival sects, the Dogmatists and the Empirics, arose. "Hanc mox secuta est medicorum in sectas secessio," says Blumenbach, in his admirable synoptical introduction to the literary history of medicine, "præsertim in *dogmaticam* quod in medicina exercenda rationi multum tribuebat et *empiricam* quæ fere unice experientiæ confidebat."* The real matter of dispute in this controversy, at the time of its origin, and as somewhat altered, it has occupied men's minds since, and occupies them now, was, "how far is theory to be permitted to regulate practice?" Celsus, in an elaborate passage,† has very candidly stated the case for both parties, though he evidently, as has already been noticed, favoured the empirics. To it and to the admirable account which Le Clerc has given of the rival sects, we must refer those interested in the inquiry; and further to two very elegant essays, entitled 'The Empiric and the Dogmatist,' by Dr. Thomas Percival.‡ The establishment and flourishing career of the school of Alexandria forms a very important chapter in the history of medicine. In it, during several centuries, a succession of learned men, not devoted to medicine alone, but to the other sciences as well, was produced, and thus the school became subservient to the advancement of knowledge and learning, and at all events prevented the decay into which, after the decline of Grecian literature, they were in no small danger of falling. But though during centuries the principal seat of medical learning, Alexandria was not the only school. Smyrna, Pergamus, and Epidaurus, during the same period attracted students, and these cities were visited by not a few of the more distinguished pupils of the Alexandrian teachers.

We must now pass very shortly to consider the rise and progress of medicine in Rome. Pliny informs us in terms the most distinct that for more than six centuries Rome was without physicians,‡ an expression which, while it cannot be supposed to indicate what it literally

* Liber 1, Præfatio.

† Essays.

‡ Liber xxix. chap. 1.

means, that no attempts were made to mitigate or to cure diseases, may be accepted as a very explicit notification, on the authority of one very well informed, that during six centuries there were in Rome no individuals eminent for their learning or skill in the healing art, or perhaps, that during that lengthened period, medicine was in no part of the vast territory of Rome regarded as the object of a distinct art or occupation.

By the famous Roman historian, Livy, who was born fifty-nine years B.C., and died A.D. 17, as well as by others, references are made which clearly indicate that in medicine, as in nearly every other subject relating to the arts of life, the Romans copied the Greeks. No better proof of this exists than the history Livy gives us of the introduction of the worship of Esculapius into Rome. "Anno 234 ante Christi natum," says Blumenbach, "*medicina cum reliquis scientiis e Grecia Romam migravit.*"* The first physician who settled and practised at Rome was Archagatus, the son of Lysanias. He was born in the Peloponnesus, and appears to have entered the Eternal City during the consulate of Lucius Æmilius Paulus and Marcus Livius Salinator, in the year 535 from its foundation, or about 219 years before the birth of our Lord. Little is known of this, the first Roman physician. Pliny informs us that the privileges of citizenship were conferred upon him. He is alluded to under the title *Vulnerarius*, from which we may conclude that he was more devoted to the practice of surgery, than that of medicine. Another title, but one by no means so complimentary, was conferred upon Archagatus—namely, *Carnifex*, murderer or executioner, on account of the unfeeling and even barbarous manner in which he is said to have treated his patients.† The performance of some bold operation may in the first instance have led to the latter epithet being applied to Archagatus, a conjecture all the more likely to be correct when we reflect how common it has been in recent times, and even in our own day, to regard distinguished surgeons as necessarily cruel, or at all events, less humane than other mortals. That their being adepts in surgery should necessarily lead to such an issue, we need not say appears to us a complete *non sequitur*. We learn from a study of the early history of Rome, that the inhabitants regarded with feelings of envy, and oftentimes of hatred, the Greeks who had settled themselves down in Italy, and chiefly in the capital, no doubt like our modern emigrants, for the purpose of "bettering themselves." In the intensity of his dislike to the Grecian settlers, Marcus Porcius Cato, the censor, was at this time particularly distinguished. By Scipio Africanus, on the other hand, they are said to have been encouraged and protected. It has even been affirmed that by Cato the expulsion of the Greek physicians from Italy, just as in modern times the Jesuits have been banished the Eternal City, was meditated, if not actually put into execution.‡ About a century elapsed before we meet the name of any other physician in Rome who distinguished

* Op. cit.

† Plinii, op. cit.

‡ See Agrippa's *Variety of Arts and Sciences*, p. 297. For a view of this philosopher's hatred of physicians, see Mr. Morley's admirable *Life of Cornelius Agrippa*.

himself; but about that time we do find one whose influence was widely exerted and proved most beneficial. "*Primus vero medicorum Romanorum fama et meritis præcellens Asclepiades erat.*"** This physician was born 91 years B.C., was a native of Bithynia, and originally settled in Rome as a teacher of rhetoric, but being unsuccessful in this walk, at a comparatively late period of life he applied himself to the study of medicine. From what Galen and Cælius Aurelianus have recorded of Asclepiades, it is evident that he was a man possessed of very considerable talents and understanding. Like not a few practitioners of our own times, however, who, thirsting for professional success, are not very delicate in the means they employ, if only they obtain it, Asclepiades commended himself to public confidence by the very general condemnation—not unfrequently the unmeasured abuse—with which he assailed the practice of his contemporaries, and the disparaging manner in which he spoke of the doctrines of his predecessors—even those of Hippocrates himself. This was the method Asclepiades adopted, and whether or not his success was due to his sagacity, of the fact of his great popularity there can be no doubt. He was totally ignorant of anatomy, and was foremost in proclaiming the inutility of anatomical and pathological investigations. His merits have been very differently estimated by different authors.† There can, however, be no doubt that he was instrumental in advancing the boundaries of medical knowledge. Of him Celsus says, "*Asclepiades officium esse medici dicit, ut tuto, ut celeriter, ut jucunde curet,*" a phrase which may be said to have become proverbial in the profession. He employed the lancet in the acute diseases of the chest which were accompanied by pain, but in those only; he incised the tonsils, and was the first to perform the important operations of laryngotomy and tracheotomy, of which Cælius Aurelianus nearly two centuries thereafter writes in terms indicating his idea of the extreme rashness of Asclepiades, and further characterizes the operation as one which should never be performed. He it is who first divided diseases under the names of acute and chronic. Another important doctrine of Asclepiades is thus well expressed by Dr. Watson, "the self-limitation of diseases, asserting that the principal cure for a fever was the disease itself." (p. 101.)

The immediate successors of Asclepiades were Themison, the originator of the Methodic school, who held views midway between the Dogmatists on the one hand and the Empirics on the other; Antonius Musa, to whom Pliny‡ refers; and Cassius, whom Celsus§ styles "*ingeniosissimus seculi nostri medicus.*" Of these and others we cannot now speak, and pass to a brief notice of him who has been justly designated the Latin Hippocrates Aulus, or Aulus Cornelius Celsus, the first native Roman who wrote on medicine, for previously to his time the physicians in Rome who had attained to eminence were Greeks or Asiatics, is most generally considered not to have been a regular member of the medical profession, but as having devoted himself to the

* Blumenbach, op. cit.

† By Cacchi (in his *Discorso sopra Asclepiade*, Firenze, 1758) he is styled "*Uno dei più eccellenti e più fortunati uomini dell' antichità.*"

‡ *Historia Naturalis*, lib. xix. chap. 8.

§ Celsus: lib. i., præfatio.

study of many things connected with the theory and practice of medicine. Judging from his writings, 'De re Medica,' it is indeed difficult to believe that Celsus was a mere dilettante in physic; but it must be remembered that by his contemporaries his works on rhetoric and agriculture seem to have been equally prized,* while their author was respected as a most learned man—one who studied natural history in all its varied departments, and attained an excellent understanding in each.

Celsus was, in all probability, born in Rome, though by some Verona has been considered the place of his birth. That event occurred within the first few years of the era, and most likely in the year 4. We have the authority of Galen for stating that Celsus received an excellent education. By the attentive student of his writings, however, no such authority is required: the perusal of these forces the conviction. By some authorities it has been supposed that Celsus acted as secretary to the Emperor Tiberius when on his expedition to the east, and they imagine this view to receive confirmation from the circumstance of Horace, in his epistle to Julius Florus, mentioning the compilations which a certain Celsus made from the library of Mount Palatine.

"Quid mihi Celsus agit? Monitus multumque monendus,
Privatus ut querat opes, et tangere vitet,
Scripta, Palatinus quæcumque recepta Apollo;"†

They further endeavour to establish the existence of an intimate relationship between Celsus and Ovid. It is greatly to be regretted that all the works of this distinguished author have not been spared to us. At the same time we may truly congratulate ourselves on the possession of the treatise, 'De re Medica, libri octo,' and reasonably regard it as a *chef d'œuvre*.‡ Into a discussion of this work, so well known and so thoroughly appreciated, it is here altogether unnecessary to enter. The most interesting portions are undoubtedly those devoted to surgery. Hippocrates and Asclepiades are the two authors to whom Celsus is chiefly indebted. In his system of prognostics, which, in ancient times, was not employed in the limited sense in which we now use the term prognosis, but was significant of all the phenomena of disease, as the master mind and observing power of Hippocrates had traced them,—Celsus was at one with the father of medicine, also in respect to the nature and treatment of surgical maladies. Many passages on these subjects are literal translations from Hippocrates; and it very probably was from the known respect he entertained for the Coan physician, and the frequent allusion to his writings and quotations from them, that the title "Hippocrates Latinorum" came

* It has not always been considered so, however. Quintilian makes the following foolish and ill-natured remark. "Quid plura? cum etiam Cornelius Celsus mediocri vir ingenio non solum de his omnibus conscripserit artibus, sed amplius rei militaris et rusticæ etiam, et medicinæ præcepta reliquerit? dignus vel ipso proposito, ut eum scisse omnia illa credamus. Lib. xli. ch. xi.

† Epistolæ lib. i. 3, l. 16.

‡ For a long period the treatise 'De re Medica' was regarded as complete: the celebrated Morgagni, towards the commencement of last century, had the merit of discovering that the fourth book was incomplete, and that the hiatus was of a considerable extent.

to be applied to Celsus. The references to Asclepiades, particularly in the earlier books, are frequent. Not unfrequently he differs on important topics from him; but Celsus applies the title of a good author to Asclepiades, and his opinions he evidently respected as those of a sagacious physician. Next to these, Celsus most frequently alludes to the views and practice of Themison, his contemporary, and of the learned and distinguished teachers of the Alexandrian school, Herophilus and Erasistratus. But though evidently an earnest admirer, Celsus was no blind follower of Hippocrates. Like Asclepiades, he rejected the theory regarding critical days—a most important part of the Hippocratic doctrine as respects fevers and other acute diseases; and after giving a short but comprehensive and decided statement, in the third book,* of his own views as opposed to those of the Father of Medicine, he thus sums up:—“Adco apparet, quacunque ratione ad numerum respexerimus, nihil rationis sub illo quidem auctore (i.e., Hippocrates) reperiri.”

At the period when Celsus flourished, surgery had made very considerable progress. Many of those operations which we denominate the grand or capital operations of surgery are minutely described in his pages, and were evidently practised with success in his time. Of late years an additional amount of interest has been thrown upon the subject of the surgery of ancient Rome, from the circumstance of the discovery of numerous surgical instruments in the excavations at Herculaneum and Pompeii. When it is remembered that these Roman cities were at a distance from the capital which cannot have exceeded a few days' journey at the time, and that at the very period of their overthrow (A.D. 79) Celsus was alive in Rome, very probably engaged in writing the treatise ‘*De re Medica*,’ it is highly probable, if not absolutely certain, that the same surgical instruments which were in the hands of the practitioners at Rome would be possessed by their brethren then exercising their art at Herculaneum and Pompeii. In illustration of this—a subject to which neither M. Renouard nor Dr. Watson have had their attention called—we must, for the present, merely refer our readers to the labours of the late Professor Vulpes, of Naples, who with untiring diligence examined all the discovered instruments, and by his well-directed efforts has conferred a substantial benefit on the history of surgery.† Of the practitioners in Rome contemporary with Celsus and those who flourished during the first and second centuries, we cannot now write in detail. During that period the capital of the world gave rise to no native author of distinction on any of the branches of the art of healing. The knowledge we possess of the condition of the Roman empire, and of the state of the medical profession in it, as well as more precise information regarding individual physicians and surgeons of the period, is due in no small measure to the illustrious Caius Plinius Secundus, Pliny the elder,

* Chap. iv.

† Illustrazione di tutti gli Strumenti Chirurgici scavati in Ercolano e in Pompei e che ora conservansi nel Real Museo Borbonico di Napoli. For notices of this work see Dublin Quarterly Journal of Medical Science, August, 1852; and Edinburgh Monthly Journal, August, 1853.

who, in his immortal work, '*Historia Naturalis*,' has especially made us acquainted with the medicinal plants then in use, the medicines derived from the animal kingdom, and further, with very interesting particulars regarding many diseases, commencing, as Book twenty-sixth does, with the affection lichen, or mentagra, which is supposed by some to have been identical with the venereal disease.

Regarding the interval of time which extended from Asclepiades to Galen, about two hundred and fifty years, Dr. Watson well observes that it was "one of the most active periods in the whole history of our art."

"As such," he continues, "it is more worthy of notice, from the fact that the native Romans were never seriously devoted to the cultivation of the sciences. But quick discoverers of the useful, they knew how to improve upon the suggestions or discoveries of the Greeks. Their immense cloaca for the drainage of the city,—their public baths,—their care in the selection of sites for new towns, villas, and private residences,—their improvements in architecture, and the domestic arrangements of their dwellings, as set forth by Vitruvius and others, are sufficient to show that the lectures of their Grecian masters on the rules of health had been properly appreciated, and the information thus diffused among them turned to good account." (p. 112.)

During the same period distinguished men were born in various provinces or dependencies of the Roman empire. Of these none has enjoyed a greater amount of posthumous fame than Aretæus, surnamed the Cappadocian, from the place of his birth. Little is known of the personal history of this distinguished physician, Galen, strange to say, being entirely silent regarding him; there can be little doubt, however, that his literary and medical fame was not acquired among the mountains of his native Cappadocia, nor that a great part of his life was passed in Egypt, as Dr. Watson supposes; but that, like Archigenes born in Syria, and Galen in the city of Pergamos, prompted by a laudable ambition, he had early hastened to the Capital, "there," as Dr. Adams, his most recent biographer,* has observed, "to try his fortune in the great seat of empire."

As an author, Aretæus is distinguished for the combination of elegance and simplicity. By the moderns his works have been most highly esteemed. Haller seems to assign him even a higher niche than that he considers due to Hippocrates; Sprengel reckons him immediately after the Father of Medicine; and our countryman, Dr. Friend, seems to rank them together. Aretæus was an able defender and supporter, the most able, indeed, of the doctrines of the Pneumatics. The sect of the Pneumatics, originally founded by Athenæus of Attaleia, in Asia Minor, but a practitioner in Rome, centred their belief in the body being constituted of solids, fluids, and pneuma or spirits. Upon the due correspondence and proper relationship of these three constituent elements depended health. Like Aristotle and the Stoics, whose doctrines in the time of Aretæus, patronized by the Roman Emperor Antoninus, were held in high repute, he regarded the "pneuma" as passing from the lungs to the heart, and thence by the arteries distributed to all parts of the system. The heart he re-

* See an interesting sketch in the works of Aretæus, edited for the Sydenham Society.

garded as the focus, or central point of the vital force and of the soul. The qualities of the pneuma he looked upon as mainly determining the nature of most diseases—a dense pneuma producing organic obstructions. Thus, in the first book of the treatise on chronic diseases, and in the chapter “περι Σπλήνους,” Aretæus observes, “Even to its upper parts the abdomen is filled with a pneuma, thick, misty, humid in appearance, but not in reality.”

About the same time as the Cappadocian, there flourished the author of the only complete treatise on the *Materia Medica* which has been handed down to us from antiquity—Pedacius Dioscorides. It is true that before the birth of this eminent man there were many physicians and others who had occupied themselves with the examination and investigation of the substances used in medicine; but comparatively little was known before his day, and no exact information had been collected. Prior to Dioscorides there had been, among others, the two Andromachi, father and son, to whom a remarkable prominence is given by Galen. The father was physician to the Emperor Nero, from whom he received the designation ἀρχίατρος, a term afterwards used in the days of the Emperors to denote a physician of unusual eminence. He must have lived very shortly before Galen, as we find the latter thus writing in regard to him: “Andromachus vir mehercule memorabilis nec multo ante nos natus.”* Anazarbia, a town in Cilicia, was the place of the birth of Dioscorides—an event which probably occurred in the latter half of the first century. In all ages the works of Dioscorides have been read and admired. Galen frequently refers to and quotes from them; by Oribasius, a learned physician of the fourth century, they are spoken of in the highest praise. Modern authors, too, have all contributed to do Dioscorides honour. As his works now exist, they contain five books on the *Materia Medica*, and two separate treatises, in which poisons, wounds inflicted by venomous animals, and their appropriate treatment or antidotes, are discussed. No ancient work on medicine, or its allied sciences, is more entitled to our study or regard, and certainly there are none which will more fully reward the attention bestowed upon it.

The condition of medicine in Rome during the second century is best judged by a consideration of the writings of that illustrious man whose genius and fame have secured for him the title of “the Prince of Physicians.” Claudius Galen was born in the one hundred and thirty-first year of the Christian era, during the reign of the Emperor Hadrian, in the city of Pergamos, in Asia Minor, celebrated in many respects, but more especially on account of the temple of Æsculapius.

For our knowledge of the personal history of Galen, we are chiefly indebted to himself; he has been his own biographer, and materials ample enough, are supplied—not always judiciously, throughout his writings, to enable us to acquire a tolerably circumstantial view of his life. Into this we cannot now fully enter; a somewhat meagre account of it is given by Dr. Watson. It appears that by his father,

* De Theriaca.

Nicon, the dawning of genius in the youthful Galen was very early discovered, and that from the first no means were spared for quickening that promise which was afterwards so gloriously fulfilled. It was from the mere accident of a dream that Nicon changed the profession he had intended the son to pursue, from that of philosophy to medicine, and thus was secured to our science the possession of one of the greatest names which has adorned it in any age or clime. The professional education of Galen was of the most liberal and extensive description; originally conducted in the city of his birth, he seems to have passed from Pergamos to Smyrna, thence to Corinth, and finally to Alexandria, at that time still deservedly eminent in the world of science. After a residence in Egypt, which must have extended over several years, Galen made a journey to Cilicia, Phœnicia, and Palestine, visited Scyros and Crete, and in his twenty-ninth year (A.D. 158) he again reached his native Pergamos.

On the occurrence of a revolutionary movement, probably judging that his position and means of professional advancement would be seriously impaired, and no doubt attracted westward by the fame which certain of the Greek physicians in Rome had acquired, he bent his course to the then capital of the world. Settled there, his reputation immediately began to rise, and during the four years he remained, we find Galen to have been regarded by small minds with that degree of enmity and malignity which has ever been seen in this world's history, to be directed by them against those who, whether deservedly or otherwise, have rapidly attained to professional success.* In the work of Galen which we have referred to, abundant particulars regarding his life in Rome are afforded. It was, no doubt, by his successful lecturing and writing, and particularly by the success of his practice, that the envy and ill-will of the Roman physicians were drawn down upon him, and it was their determined hostility which induced him to escape from their machinations and from Rome at the same time. It has been said, indeed the charge has been frequently made, that Galen fled from Rome to avoid the plague, which, originating in the neighbourhood of Antioch in the year 166, and in its progress ravaging many parts of the Roman empire, finally reached the capital.† There can be little doubt that in the main this accusation, though perhaps receiving some sort of countenance from what Galen himself says in the 'De Libris Propriis,' cap. i., is groundless. Surely the whole of his after life and the character of Galen sufficiently contradict it. But at the same time, the fact of his leaving Rome just as the pestilence reached it, clearly shows that Galen regarded his life as very insecure in that city, owing to the eager rage of his enemies; and further, that his anxiety to revisit Pergamos, now that the revolution which had originally driven him from it was over ("seditione in patria mea sedata"), was also very great.

It was in 167 that Galen left Rome, but he had scarcely settled

* The language employed by Galen himself in his treatise 'De Prænotione ad Epigenem,' being "Medicorum et Philosophorum in urbe malignitate."

† This was the epidemic which Gibbon in his forcible language describes as "attacking with indiscriminate rage every rank and profession."

down to his usual mode of life in Pergamos, before he was summoned to attend the Emperors Marcus Aurelius and Lucius Verus, then at Aquileia in Venetia, the chief bulwark of Italy on the north-east frontier, whither they had gone to superintend the preparations for war with the northern tribes, and had resolved to spend the months of winter. Passing through Thrace and Macedonia, a journey which he performed on foot, for in the 'De Simplicium Medicamentorum Facultatibus,' we read "*eamque pene totam pedestri itinere pertranssivi,*" Galen, towards the close of the year 169, reached the camp of the Emperors, but to find it abandoned by both, owing to the pestilence, already referred to as so wide spread, having broken out with redoubled violence. The Emperor Verus died in the Venetian territory, of apoplexy; Galen accompanied Aurelius to Rome. Again rising high in public favour, and retaining the confidence of Aurelius, he was appointed by the Emperor physician to his son Commodus, then a boy, when he himself left Rome to prosecute his wars on the Danube. About this time two of his principal works formerly commenced were completed—viz., 'De usu Partium Corporis Humani,' and 'De Hippocratis et Platonis Decretis.' Galen once more revisited Pergamos, and finally died at an advanced age; when and where this event occurred is not, however, accurately known. Many authors, and among others Chartier, have stated that Galen, convinced by the miracles performed by the disciples of Christ, embraced the Christian religion, and that animated by the desire to visit the scene where these miracles were performed, he had set out on a voyage to Judea, but that owing to shipwreck or sudden illness, he never accomplished his design.* Such are some of the best authenticated circumstances with which we have become acquainted in regard to the personal history of one of the most illustrious physicians, as he was one of the ablest and most renowned men, who ever lived. Galen did not confine himself to the acquirement of professional knowledge alone: it is evident from his writings that he was philosopher no less than physician, and he particularly insisted on the necessity of all physicians being acquainted with other branches of knowledge in addition to medicine. Of his personal character, as exhibited in his writings, there is much to admire him for, and there are also some defects, otherwise he had not been mortal, to point out. He was certainly a most accomplished and very learned man, and seems to have been habitually deeply impressed with the gravity and high responsibility of the office of physician. But no doubt he had too high an opinion of his own great merits, and like all such as over-estimate their own good qualities, he expressed himself with a bitterness and contempt, which frequently became untrue besides unjust, of his personal opponents and contemporaries. For this failing on the part of Galen, living at the time, he did, and unsoftened, as during the greater part of his active life he no doubt was, by the amenity and genial influence of Christianity, let us not forget that some apology at least is to be found.

The works which Galen bequeathed to the profession are as numerous as they are valuable, amounting to not fewer than two

* See Portal: Histoire de l'Anatomie et de la Chirurgie, vol. i. p. 92.

hundred, while the information they contain and learning they display are such as to make it abundantly evident, that of his contemporaries there was no one who equalled him; that of the second century Galen was the *facile princeps* of medical writers and of physicians. The severity of our judgment may be extenuated regarding a man who so vehemently and systematically condemned the opinions and practice of others, when we reflect that, as was the case with Galen, he was immeasurably superior to all his contemporaries, of the "futility of whose reasoning" and "deficiency in their information" he was profoundly convinced. The result of all this was, that Galen attained to a rank in the medical world, and swayed the opinions of physicians and of the public on all points connected with medicine, in a manner before and since unknown. Hippocrates, it is true, had been recognised during his lifetime as the Father of Medicine; but in his day learning was confined to the few, and it required the development of man and his inventions, such as the establishment of the empire of Rome brought about, before a Galen could exist. For many centuries after his decease, the doctrines and tenets of Galen were, as Dr. Bostock well observes, "regarded very much in the light of oracles, which few persons had the courage to oppose."

According to Choulant,* who has made the so-called works of Galen a subject of special study, these consist of eighty-three treatises acknowledged to be genuine, nineteen whose genuineness has with more or less reason been doubted, forty-five undoubtedly spurious, and fifteen commentaries on different works of Hippocrates, while more than fifty short pieces and fragments (many or most of which are probably spurious), are still lying unpublished in the different libraries of Europe. Besides the works now referred to, many other treatises were written by Galen, of which nothing but the titles have been preserved. Dr. Greenhill believes that the total number of the Galenic writings cannot have been fewer than five hundred.† The first edition of the collected works of Galen was published at Venice in 1521, in five volumes folio.‡ The best edition of the works of Galen is that of Kühn, in twenty volumes octavo, 1821-1833.

In judging of the particular views entertained by Galen, it must be remembered, that at the period when he began to study, the profession of medicine was divided by several sects, these all disputing with one another. The Dogmatists and Empirics had long existed, but still the particular views of these two rival parties were upheld with an equal degree of tenacity and keenness to what had manifested itself in the days of Celsus, and before his time. About a century B.C. had arisen the Methodic sect, while very shortly before the time of Galen there had been established the Eclectics, Pneumatics, and Episyntheticks. What is important in connexion with Galen to note is, that, unlike all the physicians of Rome who were his contempo-

* *Handbuch der Bücherkunde für die Aeltere Medicin.*

† See his most interesting account of Galen, in Dr. Smith's Greek and Roman Biographical Dictionary.

‡ † See Blumenbach, *op. cit.*; Haller, *Bibliotheca Anatomica*, tom. I.; and Dr. Greenhill, as above.

raries, unlike all who had preceded him, he attached himself to none. "Nullius addictus jurare in verba magistri," he chose from the tenets of each what he believed to be true and most generally useful, but in no way did he connect himself with the Pneumatic or the Eclectic school, with the Dogmatists, Empirics, or Episynthetics. So far, however, as his general principles of professional action are concerned, Galen may truly be considered more of a Dogmatist than as belonging to any of the other sects. Of Hippocrates, Galen was a great admirer, yet he was no blind copyist, frequently differing from him, generally in no empty or vain spirit, assigning a reason, and in the majority of instances a legitimate one, for the variance. He despised those persons who attached themselves to any particular master. If we judge from the meagreness of his anatomical descriptions, and from the circumstance of his never referring to the dissection of the human body, we are entitled to conclude that this was a branch of professional inquiry which Galen had no opportunity of practising. Monkeys and other animals he did frequently examine anatomically.

Erasistratus and the disciples of the Alexandrian school conceived that the arteries contained no blood, but air; Galen, by experiments happily contrived and executed, determined that the arteries contained blood, and blood alone. "Ubi funiculo dissectam arteriam utrinque ligavimus, et quod in medio comprehensum fuerat incidimus, sanguine plenam ipsam esse monstravimus."* This, then, was a most important discovery, and equally important and interesting is the account Galen gives of the function of respiration. Mons. Flourens has well observed in regard to it: "l'idée de Galien était un progrès, et tellement un progrès que, sur ce point, la physiologie tout entière n'a pu en faire un autre que par le secours de la nouvelle chimie."** The pathology of Galen, though by no means so perfect as his physiology, is still worthy of attention; like the Father of Medicine, he supposes that in the fluids the primary cause of disease existed. As his foundation of reasoning, he adopts the doctrine of the four elements. The causes of disease he regarded as remote or at hand, and of these he gives a description not unlike our predisponent and excitant causes. The superabundance and the degeneration, but especially the putridity of the humours, Galen looked upon as the grand first causes of diseases. His practice was founded upon his pathology, and partakes of its excellences and errors.

Many of the cases recorded by Galen, though falling short in the interest excited by the simple and genuine manner of those detailed by Hippocrates, are instructive in no small degree. In particular diseases Galen adopted special modes of practice; but as a general rule his regimen, diet, and great part of his employment of medicines, resembled the plan followed by Hippocrates. At Pergamos, Galen appears to have acted both as physician and surgeon; but "in Rome he did as Rome did," and in conformity with the usage of the phy-

* Histoire de la Découverte de la Circulation du Sang, p. 5.

sicians of the Capital, abstained from the performance of surgical operations. There is something extremely interesting in observing how very similar our notions and actions in this respect are with those entertained and practised sixteen hundred years ago.

In regard to Galen it may be said, as was truly affirmed of Hippocrates, that his amazing superiority to his contemporaries for a very long period repressed any attempts at further improvement in the science and art of medicine. • The names of some of those who flourished at the same time as Galen have reached us; and the learned Le Clerc, and in some measure too the erudite Sprengel, deserve no small amount of credit for rescuing from oblivion those of not a few which would otherwise have perished. But in judging of the merits of men—and this is perhaps truer of our profession than of any other, though true of all—we are too apt to consider those only who have been great authors, while unfortunately it has not unfrequently happened, and happens still, that the man who has seen most, and is best able to write because he has most to write about, is summoned hence ere posterity are favoured, or even contemporaries have profited, to the extent they might have done; this is a point which should not be forgotten by the student of the History of Medicine.

With a brief notice of the Greek writers subsequent to Galen, and an interesting chapter on the Laws and Customs of the Roman Empire in Relation to the Medical Profession, the work of Dr. Watson is for the present brought to a close. From his preface we are led to expect a further contribution to the History of Medicine—this time among the Arabs and in the schools of the middle ages. We can only say that we shall be glad to welcome any additional fruits of his labours, feeling satisfied that these will be the result of a careful and reflective study; for though in the volume before us there is no distinct manifestation of a profound acquaintance with the ancient authors themselves, there is abundant evidence of Dr. Watson's familiarity with the writings of both ancients and moderns who have devoted attention to the History of Medicine.

In noticing a work of merit and excellence such as Dr. Watson's, it is a pleasing duty to conclude without a single word of adverse criticism, and we shall not deny ourselves that gratification; at the same time we take the liberty of counselling a more exact revision of his proofs by Dr. Watson in the event of a second edition being called for. The references to authors are oftentimes inaccurate: for example, at foot of page 13, "*Plinii Historia Naturalis*, lib. xxix., cap. vi.-viii." is cited; but in the 29th book of Pliny there are only six chapters! the reference should be lib. xxix., cap. i. Again, at page 149, it is annoying to find *Satyrus* spelt *Satyrius*, and the well-known instructor of Galen at Corinth Numesianus, appearing as *Normiscianus*; while worse than either, Polybius, the distinguished son-in-law of Hippocrates, is throughout the book styled *Polybius*! and might thus be confounded with the eminent historian of that name.

Of the book of Renouard, and the manner in which Dr. Comegys, the translator, has executed his task, we have already expressed a very

favourable opinion.* Had our space permitted it, we should have been glad to have entered upon a fuller consideration of some of the more important doctrines which at various times were supported in the different schools of medicine, and to which in this article we have scarcely been able to do more than to allude. As regards these, the most suitable place for their discussion is no doubt the lecture-room; and we hope before long to find that in every important school of medicine in this country, opportunities will be afforded to students, whereby they may be enabled to attain some knowledge, at least, of the history of that profession to the practice of which their lives are to be devoted.

REVIEW VII.

Clinical Lectures on Certain Diseases of the Urinary Organs: and on Dropsies. By ROBERT BENTLEY TODD, M.D., F.R.S., Physician to King's College Hospital.—London, 1857. Small 8vo, pp. 435.

IN our day much is done, laudably done, and well done, by aspirants. The goddess who presides over medical affairs in London will not be approached by any who bring not in their hand some votive offering, as a testimony of their ability and diligence. It may be a heart, a lung, or a kidney, nor will she disdain an uterus, liver, or stomach. Something her worshippers must do to attract her regard, and obtain at least permission to be distinguished from the *ignobile vulgus*. And for their future it is much the same. The same efforts, the same offerings, are needful to obtain her further and higher favours as were required for the first. *Ἐφ' ἧς ἐστὶ* is her response to all the petitions that daily beset her. And of a verity the oracle is obeyed, and on all sides work is done, and by very many right good work, that bears well deserved golden fruit. But apart from these, though once of them, are a few, the elect (not those of the College of Physicians), who are accepted and privileged. To them the gates of the golden shrine are open, they enter when they will, and on them the goddess sheds her choicest favours. They have attained above the region of strife and contest, and walk (or rather *drive*) in calm and secure dignity!

• • Perfecto munere Divæ—
Devenere locos lætos, et amœna virgæ
Fortunatorum nemorum, sedesque beatas."

Now, to the praise of some of these, it is to be said that they still pursue their labours though for their own sakes unneeded. They use their advantages, and improve them, more for the good of others than their own. Their work is from the purest motive, and can scarcely fail to be of the highest order.

Among these distinguished worthies, Dr. Todd holds his place most deservedly. He has steadily laboured for the promotion of rational medicine, not only by his personal exertions, but by calling forth and

* Dr. Comegys also has allowed many errors of the press to escape his notice. At p. 39 there is a very stupid one. Cleyer specimen *Medicæ Sinicæ*, should be Cleyer specimen *Medicine Sinicæ*; and at p. 42, the author's name Cleyer appears as Fleyer. Many others might be noticed.

encouraging those of others. It is no small merit that the 'Cyclopædia of Anatomy and Physiology' owes its existence to him: it required no little endurance and effort to bring this great work to a conclusion. The Todd-Bowman (as Germans call it) Text-book of 'Physiological Anatomy' was a work of love for one of the principal sciences on which rational medicine relies, which does its authors the greatest credit. To it the rising generation of medical men will owe in great measure a familiar acquaintance with all the chief truths respecting the healthy structure and working of the frames which are to form the subjects of their care. The possession of such knowledge will do more to make sound and able practitioners than anything else. For his share in these two undertakings, now happily completed, in which self-interest could have been little, if at all, concerned, we think Dr. Todd deserves the best thanks of his generation. Of his other well-known labours we cannot say anything now, but must hasten on to the especial consideration of the last, whose title forms the heading to this Article.

Remembering that a *preface* is really a *postscript*, we shall defer the consideration of some admirable suggestions contained in this part, until we have given our readers some idea of the contents of the volume. The first two lectures are devoted to the subject of Hæmaturia; the third and fourth to that of Renal Disease attended with Albuminuria and Dropsy; the succeeding seven to Dropsy of various kinds; and the remaining five chiefly to Gout, its various manifestations and treatment. It seems to us that Dr. Todd has done very wisely in taking such prominent and visible symptoms as hæmaturia, dropsy, and gout, as texts for his discourses. The object of clinical teaching is to impart to the student facility in dealing with the problems of disease which are ever coming before him. It is therefore a great advantage to him to have large and striking phenomena so opened out and explained to him in all their possible causes and relations, that whenever and wherever he meets them, they may have to him all the significance that really belongs to them. The mind is so prone to take partial and narrow views of the objects it contemplates, that it needs frequently to have them set out before it in a comprehensive manner. It is the privilege of genius, especially when aided by experience, to put common and trite things before our mental view in a fresh manner, so that we come to see in them more than we did before, and to see in clearer light what we saw before more obscurely. The good old parable of Eyes and no Eyes, is continually verified in medical life. One man sees in disease only dim, misty images, representing to his mind some name about which he has read and been taught. To another, each form of morbid action stands out sharp and clear—if not in all its lesser features, at least in the main outlines. It is a great benefit to the student to be led by one who himself sees clearly.

Dr. Todd notices the occurrence of hæmaturia in connexion with rheumatic fever and pericarditis; in acute renal dropsy; in an inflammatory state of kidney; in scarlatinal dropsy; as vicarious of catamenial flow; as concurrent with phlegmonoid inflammation of the kidney; as dependent on renal calculus; as associated with inflamma-

tion and ulceration of the ureter; in connexion with erysipelas of the fauces; as dependent on fungoid disease (cancer) of the bladder; and as an endemic affection of the Mauritius. Other conditions giving rise to hæmaturia are incidentally referred to also, so that on the whole the two lectures afford a very good guide to all the various diseases in which this symptom may arise. The diagnosis between renal and vesical hæmorrhage is well stated, and the difficulty of determining in many cases whether a calculus is the cause of the bleeding or not. Dr. Todd states that "by far the most common cause of bloody urine is the disturbance of a calculus formed and lodged in the kidney." This we incline to doubt, as well from the results of various cases in which the symptom has disappeared under treatment, as from the following positive evidence:—In 100 post-mortem examinations, where the history of the symptoms during life was obtained, hæmaturia is noticed as having occurred in 5 only. In one of these it was from purpura, in a second from diffuse cellular inflammation, in a third from morbus Brightii (large kidney), in the fourth from cardiac and renal disease, and in the fifth from scrofulous renal disease. In not one of the hundred was there renal calculus. Of 18 cases occurring under our own notice, in which hæmaturia was a notable symptom, the attendant conditions were as follows:—In 4 scarlatina; in 4 chronic renal degeneration; in one of these, pregnancy acted as a special promoter of the hæmaturia; in 1 purpura and debility; in 1 the patient suffered from the endemic of the Mauritius, passing the so-called chylous urine; in 1 the urine was of high specific gravity, and deposited oxalates copiously: there had been severe aching in the loins for years; very great benefit was obtained by the steady use of nitromuriatic acid and liq. opii. It is possible there was calculus in this case, but it is certainly doubtful. In 1 case the hæmorrhage came on after a fall on the back, and continued more or less for many weeks, in spite of the recumbent posture and remedies. There did not appear to be any sufficient ground for believing in the existence of a calculus; it seemed more probable that there was renal degeneration in progress, and that the tone of the Malpighian tufts was notably impaired. In one case the attendant symptoms were those of nervous depression, evening chills, &c. Under gallic acid, quinine, and opium, the hæmorrhage speedily ceased, and the general health improved. In one case orchitis was the first affection, which was replaced by an inflammatory affection of the kidneys, and this again was subdued easily by cupping and salines with antimony. The urine did not lose its smokiness, however, until after quinine had been administered. In one case there were vesical symptoms, and reason to suspect strongly the existence of malignant disease; the patient had had a tumour removed from the left breast four years previously. In one case there was great vesical irritation, but a cure was effected by copaiba and gallic acid; the disorder appeared to be catarrhal. In one case the hæmaturia, which had resisted astringents, became immediately very much diminished as soon as calomel and colchicum were given, so as to produce a cholagogue effect, and entirely disappeared.

for some time under the additional use of nitro-muriatic acid and liq. taraxaci. In the last case the hæmorrhage was decidedly renal. It ceased under the use of strychnia, and subsequently chlorate of potassium with pulv. jalap. co. at intervals. There was some dropsy and a patch of erythema nodosum, but no material impairment of the general health. The hæmaturia appeared to result from a congestion of nerve origin—paralysis of the renal plexus. The conclusion from the above evidence must, we think, be counter to Dr. Todd's. Renal congestions of an acute kind are evidently the principal causal conditions of hæmaturia. Considering the peculiar disposition of the bloodvessels of the kidney, one would expect *à priori* that bleeding from this organ would be very liable to occur—that, in fact, it would be more common than epistaxis. No doubt both hæmorrhages may result from similar causes.

Dr. Todd frequently alludes to the elimination of various morbid matters through the kidneys, and the irritation of these organs thereby, thus explaining the congestions of acute and scarlatinal dropsy. We wish to take some exception to this popular doctrine of poisons being carried to special organs, which then undergo irritation in their efforts to carry them out of the system. That a poison is received into the blood in such cases is pretty certain; that it causes inflammatory irritation in various parts is also certain; but that this indicates a necessary and real eliminative action seems to us very doubtful, and rather likely to mislead us in our practice. Turpentine passes off very positively by the skin and lungs, which it does not irritate, as well as by the kidney, which it is apt to irritate. Cantharides act quite as much on the bladder and genital organs as on the kidneys. Are we to suppose that the pulmonary inflammations of measles and hooping-cough, or the cutaneous eruptions of small-pox and scarlatina, or the intestinal exanthem and ulcerations of typhoid fever, are in any more than a faint and superficial resemblance eliminative actions? Are we to think otherwise of the serous exudations of pemphigus and eczema? Surely, if so, then much more the sweats of an ague are eliminative, and ought to be greatly promoted as a means of getting rid of the malarious poison. In our belief, the various inflammations of the exanthemata are simply reactions of the tissues in which they occur against the poison, and if they did not occur, so much the better; so much the more chance would there be of the poison, being quietly eliminated through some other channel. Take the case of a family among whom scarlatina makes its appearance. All have been alike exposed to the poison, all must have imbibed it: but in some it produces slight, in others deadly effects. What is this, but the tissues of some resenting the poison violently, of others but little? Some persons have an immunity towards one or other of the exanthemata, though the poison enters their blood when exposed to contagion (as by the laws of gaseous diffusion it must), the system does not succumb under it; it is, in fact, not a poison to them. This is particularly the case with infants as regards scarlatina. How striking is the now ascertained fact, that eight grains of quinine daily

will preserve a man in health amid the deadly miasmata of African rivers! From all that we know of the nerve-toning action of quinine, and the similar beneficial effect of generous diet, and a cheerful animation, in preserving soldiers and sailors from sickness, it seems impossible to doubt that these and all like means act by increasing the resisting power of the system, not by neutralizing the poison which surrounds it. To the same purpose is the striking case quoted by Dr. Watson (vol. i. p. 708).

The practical lesson of all this is very important. It tells us that we are not to think of getting this mischievous agent eliminated, as the only means of restoring our patients, but that we are just to obviate as far as we can the morbid action that the poison has set up. If the system is labouring under variola, we do not encourage the eruption on the skin, and congratulate our patient the more abundant the pustules are. On the contrary, Dr. Watson says, "The object is to prevent if possible a copious eruption, upon which, as we have seen, the severity and peril of the disorder entirely depend." The treatment, then, of all such like cases is to be simply that of inflammation and congestion, modified according as the affection is sthenic or asthenic. An excellent instance of judicious management of the latter state is given at p. 50, where a man with severe erysipelas of the fauces and hæmaturia, is restored to convalescence in ten days—not by sweating or purging, but "by the free administration of quinine and beef-tea by the rectum, wine, and the local application of nitrate of silver to the throat."

Dr. Todd regards the instances of dropsy concurring with albuminuria as naturally dividing themselves into two great classes: those in which dropsy is an urgent and prominent symptom, and those in which it is much less so. The causes giving rise to the first class are exposure to cold and wet, and scarlatina. Those producing the second are various, but are chronic in their action. The following table, given at p. 104, sets forth the author's views most clearly:

"A. Cases in which dropsy is urgent and acute, and albumen abundant.	<div style="display: inline-block; vertical-align: middle;"> Acute dropsy. Dropsy after scarlet fever. </div>	<div style="display: inline-block; vertical-align: middle;"> } Acute enlargement of kidney. </div>
"B. Cases in which dropsy is not a prominent symptom—is very variable in amount—chronic—and may be absent. Albumen variable.	<div style="display: inline-block; vertical-align: middle;"> Chronic enlargement of kidney. Chronic contraction of kidney. </div>	<div style="display: inline-block; vertical-align: middle;"> { Fatty disease (Bright's kidney). Waxy disease. Chronic nephritis, or chronic wasting kidney. Gouty kidney. </div>

After giving the histories of a case of fatty, and one of waxy, kidney disease, the diagnosis of these states is thus described:

"The contracted state is much more frequent than that of enlargement, whether fatty or waxy. The fatty condition is generally attended with dropsy, much greater in amount and of a more persistent and obstinate character than (in ?) either of the others, which, unless accompanied by some diseased or enfeebled

state of heart, are frequently quite free from dropsy, and generally have it only to a slight amount. The presence of abundant fat-cells, fatty casts, and free oil, with albumen in large quantity, in the urine, would indicate fatty kidney, although, for a time at least, such a state of disease may exist without these appearances; whereas, in the contracted kidney, fat-cells or fatty casts are either not present in the urine, or exist in but small number, and only occasionally, and in its more advanced stages, and the albumen is never by any means so abundant as to render the urine nearly solid under nitric acid and heat.

"The waxy kidney exhibits clinical phenomena sufficiently distinct from those of the fatty disease. Instead of the white anæmic complexion, with puffy face, which accompanies the latter malady, you will find the patient looking sallow, and, generally speaking, free from any swelling of the face. Dropsy either does not exist at all, or is very trifling. It does not show itself until the disease has advanced considerably, and it rarely, if ever, is so prominent and chronic a symptom as in the fatty disease, nor is it often as much as in the contracted kidney. . . . In most of the cases the peculiar waxy degeneration is not limited to the kidneys, but affects the liver and spleen, causing enlargement of these organs. The increased size of these viscera, therefore, becomes an aid to the diagnosis of this affection, in addition to those signs which may be obtained from the altered urinary secretion.

"The condition of the urine resembles that found in the waxy (?) disease as regards the quantity of albumen, which is generally large. But fat-cells are not found, nor the fatty casts; transparent fibrinous casts and the *débris* of epithelium are the most common appearances. But these may be absent: and in both forms of enlarged kidney this absence of all sediment is not uncommon." (pp. 105-107).

With regard to the contracted kidney, Dr. Todd remarks:

"The different varieties of contraction of the kidneys are due, so far as our knowledge at present enables us to state, to one and the same pathological condition, . . . and the *rationale* of the morbid process by which the contraction is effected may probably be explained in some such manner as the following:—Some causes or other come into operation which excite disturbances of the nutritive processes to a greater or less degree, and interfere with the normal development of the blood, this fluid becomes contaminated, and some or all of the contaminating ingredients are conveyed to the kidneys to be eliminated by these organs. In their passage through these glands, these poisonous elements create a highly disturbed state of their nutrition—a state, possibly, in some degree inflammatory, but chiefly atrophic, the tendency of which is to cause the organs to waste and shrink. The kidneys, thus injured, are rendered unable to carry off in due quantity some of the elementary constituents of the urine; and these, accumulating in the blood, become a further source of mischief, in fact, a further source of poisoning, not only to the kidneys, but also, secondarily, to almost all the other organs of the body.

"Now, one state in which this train of symptoms is very apt to occur, is that condition of the system which we call *gout*; a peculiar state, in which some morbid material—uric acid, perhaps, or some compound of uric acid, or, at all events, something very nearly allied to this substance—becomes developed in abnormal quantity in the blood, operates as a poison upon the joints, and likewise irritates the kidneys, and thus tends to keep up a gradual process of retention of morbid matters in the system, which ultimately leads to the destruction of these organs. You will not suppose that I limit the causation of this contracted state of kidney solely to gout: there are many cases in which we find no trace of gout; yet there is a general constitutional condition, analogous in many respects to that which gives rise to gout, where

the assimilative processes are much at fault, and where the blood is ill-supplied and poor." (pp. 107-111.)

The term "waxy," we think, is not the best to apply to the form of disease it is intended to designate. We are familiar with the appearance of the so-called material, but are quite unable to imagine in what respect it is like wax. It is very much like bacon, cooked, the fat being then translucent; and therefore we have always used the German term *speckig*, or *bacony*, in speaking of it. The characteristic of this deposit is, that it is always unorganized: it shows no cells, no fibres, but looks under the microscope like fragments of clear stiff jelly, with a vitreous fracture. It always indicates a grave deterioration of the nutritive processes, and may be produced by various debilitating causes, of which the scrofulous habit is one. After a good deal of study of degenerative disease, we have been led to classify the various forms in the following way. There appear to be two principal ones: the first in which organs enlarge by the deposition of cacoplastic matters in their substance; the second in which they simply atrophy and shrink. Of the first, we have examples in hypertrophy of the brain, in scrofulous enlargement of lymphatic glands, in hypertrophic cirrhosis of the liver, and in bacony deposit affecting the liver and spleen. Of the second, we have examples in certain softenings of the brain, where there is local decay of the tissue, in the contracted kidney, and the small fatty heart. In some cases the stomach-tubes are involved in a quantity of nucleated fibroid tissue, amid which they degenerate; in others they undergo simple wasting of themselves. The character of the first of these two forms of degeneration is *perversion* of the normal nutritive force of the part, so that it either turns good plasma into abnormal structure (low fibroid), or allows deteriorated plasma to be deposited, and to accumulate. The essential character of the second is simple *decay* and *loss* of assimilative force. In both of these forms of degeneration the wasting part may contain more or less of oily matter. Either the cacoplastic deposit may change into oil, by adipoceros transformation, or the normal tissue as it perishes may be replaced by the same. No doubt the presence of oil indicates a difference in the nature of the morbid change, but not, we think, a very important one.

It does not very clearly appear to us why it is necessary to assume that, in the case of the contracted kidney, the first step is contamination of the blood, poisonous matter from which seeking to be eliminated by the kidneys disturbs their healthy nutrition. May not failure of the vital power of the kidney be simply the whole of the evil? may it not be quite possible that the organ undergoes atrophy and wasting, just as the muscular tissue of the heart often does, or the suprarenal capsules more rarely? We have seen patients die of mere *anæmia*—of a condition which appeared, as far as one could judge, to be simply degeneration of the blood-cells. Why in such like cases should we go beyond what we are sure of, and advance into the regions of hypothesis without having adequate reason for so doing? Each organ has a life of its own, and there seems no room to doubt that this life may

fail or deteriorate as a primary change, not due to any prior disorder elsewhere. To take the case of gout,—Dr. Todd says that uric acid, or some compound of it, “becomes developed in abnormal quantity in the blood,” irritates, and ultimately disorganizes the kidneys. But why does it come to be in abnormal quantity in the blood? We greatly doubt that it is because it is formed too rapidly in this fluid, in consequence of errors in the diet, &c. Its amount in the urine is so small, and is liable to vary so much, that it cannot be thought improbable that the kidneys, *if sound*, might easily do a little extra duty in the way of excreting it. Dr. Garrod tells us that uric acid accumulates in the blood, because its quantity is diminished in the urine, because it is not excreted by the kidneys. Before the gouty paroxysm, the amount in the urine was not more than one-twelfth the healthy mean, and in chronic gout, with tophaceous deposit, the uric acid was always deficient in the urine, both absolutely and relatively to the other organic matters, and was always present in the blood. Surely, then, in the case of the gouty kidney, it is not the morbid blood that spoils the kidney, but the failure of the renal function that spoils the blood.

Lecture V. contains a good *résumé* of the known facts relating to dropsy. We shall only remark on one point respecting which we can offer some observations of our own. Dr. Todd justly observes, that “the limb in hemiplegia which has suffered most in its nervous power, is in general that which exhibits the greatest amount of dropsy.” In a case of general paralysis now under our care, there was very notable dropsy of all the limbs, the urine not being albuminous, nor the heart diseased. This dropsy very materially diminished under the use of iron and quinine. In another case, that of a lady who had long been the subject of chronic aguish disorder, with innumerable neuralgias and neuroses, there was most marked puffiness of the hands and feet, so much so that sometimes she could not put on her laced boot *in the morning*, though she could later in the day. Here also there was no renal or cardiac disease. The only cause for the dropsy in both these cases appeared to be debility of the vaso-motor nerves.

Lectures VI. and VII. are devoted to scarlatinal dropsy. The author expresses his opinion that the dropsy is not fully developed without the concurrence of the three following conditions:—1st, a peculiar irritated state of the kidneys; 2nd, an analogous morbid state of the skin; 3rd, a certain depravity of blood, which is not only deficient in its proper constituents, but likewise contains morbid poisonous ones. “If any one of these is absent, you may have a threatening of the dropsy, but the full result does not follow.” Granting this, though we are not prepared to give our entire assent to it, and how shall we reconcile it with the theory above enunciated, of the production of this dropsy? If when the peculiar conditions of the blood and skin are present, the kidneys *can* be healthy (see p. 157), then surely the passage of the scarlatina poison through these organs cannot be the cause of their inflammatory condition, and the consequent dropsy. In his directions respecting the treatment of this

affection, Dr. Todd's practice is dominated by his view of the necessity of eliminating the poison, we think unduly. He objects to local bloodletting because the poison is there irritating the kidneys, and detraction of blood will not take it away. Purgatives and diaphoretics are his main confidence, and diuretics of an unirritating kind. His treatment is "not antiphlogistic, but calmative and eliminatory." The use of port wine is frequently attended "with most signal benefit" (of course in cases that need a stimulus). The directions given by Dr. West, in his excellent lectures, differ materially from those of Dr. Todd, and in some respects we prefer them. He thinks tartar emetic a very valuable remedy, and the abstraction of blood from the arm in severe cases indispensable. Dr. Copland also is in favour of bleeding, and says that it "is not unusual to find the sequelæ of scarlatina to require, and the patient affected by them to tolerate, the bleeding more than in any of the previous stages of the malady." In our opinion, antimony given decidedly and early, will generally control effectually the morbid action in the kidney when it is of sthenic type. When this state has passed away, or when it is asthenic from the outset, we shall find the ferri pot. tart., combined with potass. acetat., or small doses of tinct. ferri. muriat., efficient remedies. They tone the relaxed vessels, improve the quality of the blood, and act as diuretics at the same time. The principles of treatment are in fact those of inflammation generally; the local afflux of blood is to be stayed, and subsequently, if hyperæmia persist from relaxation of the arterial coats, their tone is to be aroused by the usual agents. We quite agree with Dr. Todd as to the injurious influence of scarlatina on the blood globules: the anaemia of the dropsical from this disease is certainly very marked.

Lecture VIII. is on the subject of acute renal dropsy. We are glad to see that Dr. Todd does not consider this, or scarlatinal dropsy, or any similar state, as any *necessary* precursor of either form of degenerative disease, as Frerichs does. In a note at p. 110, he disallows the term chronic nephritis, applied by Dr. Johnson to the pathological state connected with the wasted granular kidney. He observes correctly, "the evidence of an inflammatory process having any share in the production of this state of kidney, appears to me very unsatisfactory," and so it has always seemed to us.

Lecture IX. illustrates cardiac dropsy. We could have wished that Dr. Todd had here laid stress on a point which seems to us of the very highest importance, but which is very much neglected or uncared for. It is the absolute need there exists for maintaining a steady, upholding, tonic treatment in all cases of cardiac disease, where there is a tendency to dropsy, and where the power of the heart is inclined to fail. It is lamentable to see a patient leave a hospital just cleared of his dropsy, and feeling comparatively well, and to know that no attempt is to be made to invigorate the system, and especially the enfeebled organ whose imperfection constantly tends to reproduce the symptoms. It is now nearly four years since we took under our care a discharged soldier, who could not walk more

than a hundred yards without being exhausted from dysnoea. He had hæmoptysis, cough, and the physical signs of considerable cardiac dilatation, mitral and tricuspid insufficiency. Under treatment by tinct. ferri. mar. and ol. iorsh., long sustained and repeated at need, he continued, though in very poor circumstances, to act as a messenger, and afterwards as a light porter in a shop, till January of this year. He has walked three or four miles a day, carrying a pretty heavy load.

Lectures X. and XI. treat of ascites. Cases are related illustrating its production by enlarged and by contracted livers (Glisson's capsule being thickened in both), by omental cancer, subacute peritonitis, and renal disease. Dr. Todd thinks it is "highly probable that the enlarged liver with thickened Glisson's capsule, is a different disease from the contracted liver." According to our observation, the difference is merely one of more or less fibroid formation in the portal canals and interlobular spaces. There may be a very great quantity of new-formed fibroid tissue, and then the bulk of the liver is enlarged, or there may be very little indeed; but that little may contract strongly, and compress the small portal veins. The directions respecting the operation of paracentesis are highly judicious—they relate to the adoption of the recumbent posture, the exhibition of opium, and the leaving the bowels quite quiet for several days. Dr. Todd advises that the operation should not be postponed too long, as there is then less probability of the system being able to "resist inflammation or withstand exhaustion."

Lecture XII., on the gouty kidney, contains several interesting cases well worth perusal, but not requiring any special notice.

In Lecture XIII., seven pages are given to direct us how to distinguish pus in the urine from other deposits. Surely it would have been better to say in as many lines that microscopic examination and the nitric-acid test, with heat, are fully sufficient. In this lecture and the succeeding, the subject of gouty inflammation of the bladder is very ably treated and illustrated. The remarks which Dr. Todd makes respecting the various modes in which gout affects the bladder, are very instructive and important. 1. It may cause inflammation of the mucous membrane. 2. It may render it very irritable, and so cause incontinence of urine. 3. It may affect the muscular coat, so as to paralyze it and occasion distention of the bladder. 4. It may cause violent pain in the region of the bladder. We feel some doubt whether the last mode can always, or often, be very decidedly attributed to gout. It has certainly happened to us on several occasions to meet with a very similar state in persons of a neuralgic habit, in whom we regarded it as a local affection of the same kind, whose exact locality could scarcely be determined, whether in the abdominal parietes, or the peritoneum, or the viscera. Of the second mode we met some time ago the following marked instance:—A gardener, aged fifty-seven, who had suffered seven or eight times from gout, but who had always had, as he stated, "the best of health," complained of complete incontinence of urine, and great emaciation. The bladder was

not distended; the urine was pale, not albuminous, over acid, depositing uric acid in plenty spontaneously. A great variety of treatment was tried without effect, until the right hand became affected by gouty inflammation, whereupon the vesical disorder immediately ceased. Several interesting cases of sacculated, pus-secreting kidneys, conclude Lecture XIV.

Lectures XV. and XVI. treat of gout. Dr. Todd cruelly destroys the solace of those who are thus afflicted, by tracing the origin of gout chiefly to *beer* — “that ignoble source!” Alas! that Sydenham’s goodly list of “*magni reges, dynastæ, exercituum, classiumque, duces, philosophi, alique his similes,*” should come to be put in the same category with “coalheavers, bakers, brewer’s-draysmen, house-painters, and others of the working classes.” Verily gout, like “*Pallida mors, æquo pulsat pede pauperum tabernas, regumque turres.*” This at least in England; but it seems that in non-beer-drinking countries the lower classes escape. The features of distinction between gout and rheumatism are delineated in a masterly manner; we would, however, that Dr. Todd had dwelt rather more on the means of distinguishing between the more obscure and chronic forms of these diseases, than between the more strongly marked and febrile. We cordially agree with Dr. Todd in his condemnation of active antiphlogistic treatment of gouty affections—at least in Londoners; it creates, says he, *asthenia*, and “*asthenia gives to both rheumatic fever and gout what I may call the shifting character, which in both diseases is most perilous, but in the latter especially so.*” With regard to treatment, it is rather refreshing to find some novelty in the proceeding recommended by one of so much experience, even though we may hesitate to agree with it. Dr. Todd is decidedly opposed to the use of colchicum; not that he doubts its power, “in sthenic cases in young subjects,” of relieving pain and hastening the removal of the paroxysm, “but at the same time experience leads him to subscribe to a belief very popular among gouty patients, that if it shortens the duration of the attacks, it likewise shortens the interval between the attacks.” We are far from believing that colchicum acts in any way of neutralizing the gouty poison, any more than quinine the paludal. The latter tones and fortifies the nervous system, so that it can resist the malarious influence; and the former acts as a contra-stimulant on the articulations, nullifying acute inflammatory afflux when set up in them by rheumatism or gout. At the same time, colchicum tends to increase the bile-flow and the intestinal secretion, and if judiciously combined with purgatives, it seems to us highly reasonable to expect good results from its use. These, however, more particularly relate to its use in the paroxysms, the averting of which must depend on the kidneys and other excreting glands being aroused to function properly. Small local blisters are the best means, according to our author, of relieving the articular inflammations, and they may be used even during the height of the disorder. Nothing is said of the application of pure spirits of wine to the parts in the acute paroxysm, as practised by Dr. Goolden, or of the old remedy, soda poultices, in the more chronic form.

Lecture XVI. relates a case of chronic and asthenic gout, with chalk-stone deposit in the joints, and bronchial and gastric gouty affections. This needs no particular observation, except that we should like to have heard if Dr. Todd had verified the observations of Dr. Budd relative to the conversion in many cases of uric acid into urea in the vicinity of the inflamed joints. The alcoholic extract of blister serum was found to become a solid mass of nitrate of urea when treated with nitric acid.*

Having passed the lectures in review, we would now return to the consideration of the preface. The remarks contained in it are most sound, manly, and needed. They are the voice of a man who has strong sense, and the courage to speak out. They relate to the very defective manner in which clinical teaching is given in the majority of the London hospitals, and point out the chief causes of this shortcoming. The period of the day is ill chosen; the student's time is absorbed, as well as his attention, by unnecessary lectures; and the visits of physicians and surgeons are so arranged that unless a student could be in two places at once, like Sir B. Roche's bird, he must omit attendance upon one or the other. Dr. Todd proposes a morning clinic (he has established one at King's College Hospital, medical and surgical on alternate days), and the curtailment of the courses of lectures required. With regard to the latter point, we do thoroughly agree with him that long courses of lectures are unnecessary "on any subject not requiring demonstration and experiment." What does a student want with lectures on physiology, when he can read, and must read, Carpenter and Todd-Dowman, or Kirkes? Must he not learn his osteology with the bone in his hand, and Ward before him; and his anatomy in the like way? How much more knowledge, even in chemistry, would a student acquire who worked, with a good textbook to guide him, in a laboratory, performing various experiments himself, testing, weighing, measuring, &c.? Would not a student get a far better knowledge of *materia medica* by being put into a well-arranged museum, and set to read Pereira there, than by listening to the best course of lectures that were ever given? We doubt that the mode of teaching by lectures is the best calculated to impart sound knowledge. The professor is obliged to pass over so much ground, to go from one subject to another so quickly, that no time is afforded for careful, digesting thought. Suppose any of us to go and hear Faraday lecture on a subject quite new to us, or nearly so, how much real knowledge should we have acquired, unless we studied the subject carefully afterwards? And if the subjects must be thus studied, and if, moreover, there are excellent treatises in our hands, is not the time given to lectures too much lost? One very useful aid the student might have, not alluded to by Dr. Todd, is the assistance of younger men, who should act as tutors in the several branches of study. In dissecting-rooms the presence of such men is found essential; but we feel sure the same aid would be of great use in other departments. At the Universities, the private tutor is the real essential help to the

* See *Medico-Chirurgical Transactions*, vol. xxxviii. p. 241.

working man, and the public college lectures are, or used to be, felt rather as a hindrance and interruption. Some plan of the following kind it appears to us would be a most material improvement on the present system. Let all lectures, except those on chemistry, and clinical, be abolished. Let text-books on the various subjects be assigned to the student. Let him have tutors, men a little above his own standing, to refer to for explanations, for assistance in dissection, and demonstration of specimens contained in well-stocked museums. Let there be yearly examinations instead of one, as at present; and let the subjects for the first be the more elementary and collateral sciences, and those for the last such as more exclusively relate to practice. Let each student in the final examination be required to examine and prescribe for cases of disease. The junior students should be discouraged from running after operations, which they cannot observe in any manner that will do them the least good. The out-patients at hospitals and dispensaries might with the greatest advantage be attended by some of the more advanced students, under the inspection of the medical officers. To something of this common-sense kind we shall in due time, no doubt, come, but the sooner the better.

REVIEW VIII.

1. *Report from the Select Committee on Medical Department (Army); together with the Proceedings of the Committee, Minutes of Evidence, Appendix, and Index.* Ordered by the House of Commons to be printed.—London, 1856. Folio, pp. 379.
2. *The Crimean Commission and the Chelsea Board; being a Review of the Proceedings and Report of the Board.* By Col. TULLOCH, late Commissioner in the Crimea.—London, 1857. 8vo, pp. 189.

PUBLIC attention having been directed to the organization of the Medical Department of the Army, by the reports of the disgraceful condition of the hospital at Scutari in the winter of 1854-5, and of the inadequate supplies of medicines and medical comforts furnished to the army in Bulgaria and in the Crimea, the House of Commons ordered, on the 15th of April, 1856, "That a Select Committee be appointed on the Medical Department of the Army," with power to send for persons, papers, and records. It would probably be difficult to find a tribunal less qualified to conduct a searching inquiry into the working of a professional department,—its defects, its requirements, and the changes necessary to render it efficient,—than a Committee of the House of Commons. The members, with very few exceptions, do not bring to the investigation a practical knowledge of the duties required of the department, of the qualifications essential to their discharge, and of the difficulties which the officers have to encounter in the varied spheres in which they must labour. They are

consequently left in a great measure at the mercy of private, and therefore irresponsible, advisers, who, it is to be feared, often lead the inquiry towards details in which they are personally interested, instead of pointing to great measures which would benefit the whole profession, and tend to raise it to that position in the army which it undoubtedly deserves, and by which its services to the soldier would be greatly enhanced. Such a Committee also carries on its labours without any instructions as to the nature of the investigation, its objects, or its limits. It has, in fact, a roving commission to inquire *de omnibus rebus et quibusdam aliis*, and this power is not unfrequently abused.

The Report before us is not free from the faults adverted to. With the exception of Mr. Stafford and Colonel Boldero, it is not too much to say that the Committee was not conversant with the subject into which it was to inquire. In the course of its proceedings, too, the object for which it had been appointed was more than once forgotten,—questions were put as to matters wholly foreign to it,—and the examinations assumed a personal character, neither very edifying nor very creditable to the good taste of the members by whom they were conducted.

Dr. Andrew Smith appears to have been the individual upon whom the heavy artillery of irrelevant questions was chiefly brought to bear. He was examined, somewhat unfairly, as to his own previous services, and the circumstances under which he was appointed Director-General; as to his refusal to employ Dr. Davy, a *retired* Inspector-General, as chief of the department in the Crimea; his reasons for appointing Dr. Hall to supersede Dr. Burrell in the East; the grounds on which he appointed Dr. Menzies to the medical charge of the camp at Shorncliffe, and the reasons he assigned for the subsequent removal of that officer,—all of which questions, it appears to us, were irrelevant to the subject on which the Committee was to report. With the single exception of the case of Dr. Menzies, the explanations of Dr. Smith were, upon the whole, satisfactory; but we regret to say that he did not assign any good reason for having placed in so responsible a situation an officer who, though zealous and hard-working, had signally failed at Scutari from want of administrative talent, and who in the present case laboured under the very serious disadvantage of not understanding the language of the German officers, whose hospitals he was to superintend. Of his own unfitness, Dr. Menzies seems to have been fully sensible, and repeatedly applied to be relieved from the charge, but was refused; and when at length he was removed, he appears to have been treated with harshness by Dr. Smith, whose explanations on this subject before the Committee were far from satisfactory. We deeply regret this, because in other respects the Director-General appears to have acted throughout with energy and honesty, and to have been animated by a desire to promote the welfare of the soldier, and the interests of the Medical Department.

It would be impossible, in the space which we can afford, to give a summary of the evidence taken before the Committee, because of its

very discursive character, and the great variety of opinions expressed by the different witnesses on many of the subjects. We shall therefore content ourselves with adverting to what appear, from the Report, to be the principal grievances complained of, and the remedies suggested.

A memorial to Lord Pannure, from the Military Medical Officers serving with the British Army in the East, is printed in the Appendix, with observations by Dr. Smith, to whom it was referred by his lordship. These are well deserving of careful perusal, and so clearly point out the injustice with which the department is in many respects treated, that we are sure Dr. Smith cannot but feel uncomfortable that he has so long neglected to inquire into these matters, and to advocate the claims of the officers who are under his jurisdiction, and of whom he may be fairly deemed the official representative.

The first subject in the memorial to which we shall advert is *The Rates of Pay*. These were admitted by all the witnesses examined to be insufficient to secure the services of the best class of men, and there seemed to be a unanimous feeling that they must be increased. We have said this was the opinion of *all* the witnesses; but perhaps we ought to have excepted the Earl of Cardigan, for though his Lordship had, as he informed the Committee, commanded a regiment for eighteen years, he professed that he "did not know anything about the pay" of the assistant-surgeons! But the whole of the noble lord's evidence was pretty much of the same stamp—characterized by ignorance even of the organization of the department, and by supreme indifference to the feelings and claims of the officers. For instance, although Lord Cardigan commanded the Light Cavalry Brigade in the Crimea, and ought to have been fully cognizant of the mode in which the sick are supplied with their diets and hospital comforts, and to have ascertained that this very important duty was satisfactorily and efficiently performed in his brigade, he stated to the Committee, "I never heard of a man called a purveyor, and I never saw one in my life." Again, his lordship's enlightened views, and liberal, kindly feelings towards the medical officers, are well exemplified in the following answers to questions put by Colonel Boldero:

"Q. 4120. It appears that the Medical Department of the Army have no full pay retirement; do you think that it would be for the benefit of the service, as well as beneficial to the gentlemen themselves, if, after twenty-five or thirty years' service, they were allowed to retire upon full pay?—A. Are they not allowed to retire now on full pay after any service?"

"Q. 4121. They get half pay, but they are not allowed to retire, as every other branch of the service is, upon full pay after a given period?—A. Of course it would be advantageous to them; but I cannot say that I could give my opinion in the recommendation of it, because if one is to begin to recommend about the increase of pay, there is no saying where it will end."

Truly, the noble lord's rule of action is not "*Fiat justitia, ruat cælum.*" To those who are curious in the study of character, we cannot recommend anything more amusing or instructive than a perusal of his evidence.

In returning the memorial with his observations for the information of Lord Panmure, Dr. Smith remarks :

"The subject involved in the documents herewith returned, I felt was one of a comprehensive nature, and not to be treated hastily; I therefore resolved to consult the views of certain officers of the department whom I might see in the course of a few weeks, and obtain from them such information as they might be able to afford me."

We are not informed of the names or number of the counsellors whom *chance* thus threw in his way, and in the absence of such information must therefore treat the suggestions as those simply of the Director-General. We have condensed into the following abstract his recommendations on the subject of pay, and for the purpose of comparison have also stated the rates as at present authorized.

Daily pay.	On appointment.		After 10 years' service		After 20 years' service		After 25 years' service	
	Present rate.	Proposed rate.	Present rate.	Proposed rate.	Present rate.	Proposed rate.	Present rate.	Proposed rate.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Assistant-surgeon	7 0	10 0	10 0	13 0	—	—	—	—
Regimental surgeon and second-class staff	13 0	15 0	15 0	20 0	19 0	25 0	22 0	—
Staff-surgeon, first-class	19 0	23 0	—	—	22 0	28 0	24 0	30 0
Deputy inspector-general	24 0	30 0	—	—	28 0	30 0	30 0	40 0
Inspector-general	36 0	60 0	—	—	38 0	60 0	40 0	60 0

Dr. Smith strongly recommends the abolition of a most unjust rule at present in existence, by which an officer, when promoted, however long he may have been in the army, is compelled, under certain circumstances, to serve two years on a lower rate of pay than his length of service entitles him to; the practical effect being, that those who have been unlucky in their promotion are punished for this misfortune!

He also points out the injustice done to surgeons of regiments in deducting 8½d. per day for forage, while the lieutenant-colonel, major, and adjutant receive it without any charge. If all require horses for the discharge of their duties, it is unreasonable that one should be compelled to pay for what the others receive free.

Half-pay and Retired-pay.—It is suggested with reference to all ranks, that—

"When placed on half-pay, owing to reduction of establishment, or from being incapacitated by reason of ill-health contracted in and occasioned by service, or when disabled by wounds, the officer should be granted three-fourths of the rate of pay he is receiving when he is placed on the retired list, or is reduced."

The present and proposed rates are shown in the following scale :

Retired pay.	Under 10 years' service.		After 10, but under 20, years.		After 20, but under 25, years.		After 25, but under 30, years.		After 30 years' service.	
	Present rate.	Proposed rate.	Present rate.	Proposed rate.	Present rate.	Proposed rate.	Present rate.	Proposed rate.	Present rate.	Proposed rate.
Assistant-surgeon	s. d. 4 0	s. d. 7 6	s. d. 5 0	s. d. 9 0	s. d. 6 0	s. d. —	s. d. 7 0	s. d. —	s. d. 7 6	s. d. 15 0
Regimental surgeon and second-class staff	6 0	11 3	8 6	15 0	11 0	18 9	13 0	—	—	—
Staff-surgeon, first-class	7 6	—	—	—	—	—	—	—	—	—
Deputy inspector-general	7 6	—	10 0	18 9	12 6	21 0	15 0	22 6	17 0	No increase after 25 years' service.
Inspector-general	8 0	—	10 6	22 6	14 0	22 6	17 0	30 0	20 0	—
	—	—	—	—	20 0	45 0	25 0	45 0	30 0	—

It is likewise proposed that medical officers of all ranks should have a right to retire after twenty years' full-pay service, instead of twenty-five years, as at present, but that when they do so, they should receive only five-tenths—or if they have completed twenty-five years' service, seven-tenths of their pay, instead of three-fourths, as recommended when their retirement is caused by reduction of establishment or by impaired health. Dr. Smith is of opinion that but few will take advantage of the right of earlier retirement.

"By the time a man has served twenty years, his attachment to the army is generally strong, and he finds himself unsuited to embark in private practice, and consequently is inclined to cling to the life and kind of society to which he has been long accustomed, rather than encounter the *cunui* which is experienced by men without regular occupation."

We doubt the accuracy of this conclusion, and cannot but think that a considerable number, and these the most intelligent and hard-working of the officers, will avail themselves of the opportunity to get out of a service with whose unsettled mode of life they have become pretty well sickened. The difference in the rate of retirement, however, may probably influence the results as regards the twenty years' service.

Under the head of "General Observations," Dr. Smith remarks:

"In addition to what I have stated in the preceding memoranda, I may farther observe that many medical officers consider that a certain number of individuals of each of the grades in the department should be permitted to retire on full pay under the same regulations as is observed in the case of military officers; and further, that a certain sum of money should be granted to be distributed as good service-money."

We regret that Dr. Smith should have felt himself justified in thus faintly recording what we believe to be a very strong and very general opinion of the medical officers. Colonel Boldero, in his examination of Lord Cardigan, already quoted, brought out the injustice of the case, that "every other branch of the service" has a full-pay retirement except the medical; nor is there any class by whom a reward of the description of "good service-money" can be deemed to be more fairly earned. Promotion, honours, rewards, and pensions are bestowed with

a liberal hand upon the military officers for gallant conduct in the field, or for bringing to a successful termination an expedition against an enemy, but the unflinching courage displayed by medical officers in their frequent encounters with pestilence, and their valuable and unceasing labours to maintain the soldier in a state of efficiency and consequent fitness for the fatigues of active service, are unheeded, unrewarded, and even unacknowledged. In the Continental armies this is not the case, and we trust that ere long the feeling in favour of the labours of our medical brethren in the army which was so strongly evinced by the English people, may be developed among the military authorities and those who have the power to reward courage and merit, even when shown in another—we may add a nobler—than that of physical daring.

With a view to prevent the imputation of favouritism in the recommendation for such good service-pension, it would be advisable to adopt the practice followed in the case of military officers, to publish in the army estimates, or, if thought preferable, in the 'London Gazette,' the specific grounds on which the officer has been selected for this reward.

Relative Rank of Medical Officers.—The only alteration proposed in this is, that assistant-surgeons, after ten years' service, should have the rank of captain; surgeons above fifteen years' service, that of major; staff-surgeons of the first class, above twenty years, that of lieutenant-colonel; and deputy inspectors-general, above twenty-five years, that of colonel; but in all these cases as junior of the respective grades. But there is a matter connected with the rank of medical officers which has given rise to a great deal of annoyance and unpleasant feeling in the department. It has been stated to be given to them merely for the purpose of defining their position in the choice of quarters and in sharing prize-money; but when they are ordered to sit as members of boards or courts of inquiry, their rank is over-ruled, and they are called upon to sign last and to give their vote first, whatever their rank may be, as if they were junior to all the other members. Dr. Smith recommends—

"That they should be detailed in orders, sit, and sign proceedings in the order of precedence attaching to their relative rank and seniority, and on no occasion should a medical officer be required to sit on any board or court under the presidency of a military officer of inferior relative rank. * * * If medical officers are regarded eligible to sit on boards, courts of inquiry, or courts-martial, they should have the consideration which they expect their relative rank should ensure them."

The present practice cannot but have the effect of depreciating the status of medical officers, and lowering them in the eyes of the soldiers; it is an abuse similar to that by which the naval assistant-surgeons were so long kept out of the wardroom, and like it, will, we trust, be got rid of, either by relieving medical officers from all such duties, or by allowing their rank to be what it professes.

A most erroneous notion seemed to exist in the minds of some of the Committee on the subject of the rank of medical officers; that

they were desirous of obtaining military rank because it would confer on them military command. Thus Sir H. Davie asked Lord Cardigan, "With regard to the military position of the medical officers, would you recommend their having any military command, at any time?" And again, "Would you allow him to command a parade, if he happened to have the senior choice of quarters?" (in other words, to be senior officer.) Now, we venture to affirm that such a notion as that suggested by Sir H. Davie never entered the minds of the medical officers. Their complaint is, that they are called upon to perform military duties, and are denied while doing so the advantage of military rank; and they ask either to be entirely relieved from such duties, or if required by the military authorities to perform them, that they should take their position, and enjoy all the advantages and privileges attached to the corresponding rank, but without the power of military command. We believe there are no officers in the service more alive to the necessity of military subordination, or who will more fully concur in the opinion expressed by Lord Cardigan in reply to the following question by Colonel Kingscote:

"Q. 3987. Your lordship thinks that the commanding officer of the regiment should have supreme military control over every person in, or attached to, the regiment?—A. If he has not, I consider that it is impossible to carry on the command of the regiment."

Honorary Distinctions and Rewards.—The non-participation by the medical officers in the distribution of honours for service in the field has long been a source of just complaint in the department. It is only within a few years that they were declared eligible to receive the military decoration of the Bath, and it has been conferred on them with a very sparing hand, compared with their more fortunate brother officers. Nor has this been compensated for by the grant of the civil Order of the Bath, which for many of their services would be an appropriate reward, and though not conferred, has been often merited. It is to be hoped that in this respect, a more liberal feeling may be hereafter shown by the authorities. A suggestion is thrown out that a limited number of the most meritorious officers of the department might be appointed honorary physicians and surgeons to her Majesty—a reward analogous to that conferred on the military officers who are made aides-de-camp to the Queen. A step of honorary rank on retirement from the service is also pointed out as a suitable and inexpensive reward to medical officers, which might be of use to them should they afterwards desire private practice.

But Dr. Smith is of opinion that the Director-General should have it in his power to reward special and meritorious services. He suggests that

"When a medical officer is specially recommended by the senior military and medical officers under whom he is serving, on account of his having rendered highly valuable and important services, either in the field or during the prevalence of an epidemic, or on an occasion when more than ordinary exertions were required, and were made in an unmistakable manner, such recommendation should entitle him to reckon one year's service towards promotion and increase of pay, and the same for every subsequent recom-

commendation. To warrant these advantages being conceded, the recommendation should be in most decided terms, and should contain a clause to the effect that it is offered with a view to secure to the officer recommended the reward which they know is conferred under certain circumstances."

This proposition appears reasonable, but some guarantee, such as the publication of the recommendations, with a full detail of the grounds on which they are made, in the 'Gazette' or in General Orders, would be necessary to prevent abuse. Loud complaints reached this country, of injustice and partiality in the distribution of honours among the medical officers in the Crimea; and these were in some instances so general as to remove any suspicion that they were the mere effusions of disappointed men. To make rewards beneficial to the department, it is essential that they should be fairly won, and impartially distributed. The relative rank of the regimental surgeons unfortunately rendered them ineligible for the Order of the Bath; and although it was upon them that the hard work of the disastrous winter of 1854-5 chiefly fell, they had the mortification of seeing the honours conferred exclusively upon the staff, who had been comparatively exempt from the privations and hardships which they endured.

By the regulations of the service, the funeral honours paid to the medical staff are limited by no firing taking place over their graves. Dr. Smith says,

"This treatment has always been regarded by staff medical officers as an act of injustice; and not a few of them, when dying, from a dislike to have it supposed by soldiers that they were inferior to other officers, have requested to be buried privately. I think there are fair grounds for discontent in this respect, and I feel it my duty to recommend that every medical officer should be buried with the military honours that attach to his relative rank."

The sooner any invidious distinctions of this kind are abolished the better will it be for the army. They engender feelings which may naturally be expected to lessen the zeal and efficiency of a most useful branch of the service.

Leave of Absence.—One of the grievances most felt by the medical officers, and acknowledged by all the witnesses examined on the subject, is the difficulty, almost amounting to an impossibility, of obtaining leave of absence. When an officer is sent home by the recommendation of a medical board, the period is stated in their proceedings which will probably be necessary for his recovery, and he is usually granted leave for that time; but in the case of a medical officer the leave is cancelled immediately on his arrival in England, and unless he is able to join at the end of two months, he is in most cases placed on half-pay. The result of this is, that officers are frequently sent to Fort Pitt when they ought not to be doing duty, and the service consequently suffers. When a medical officer at home applies for leave of absence "he is compelled to arrange with some qualified civil practitioner to discharge his duties, and thus in many instances incurs considerable expense." Dr. Smith recommends that

"Each medical officer should be granted yearly six weeks' leave of absence, provided the circumstances of the service should admit; and regimental medical officers should not be required to pay a substitute to discharge their duties during the period."

A slight increase to the strength of the medical staff would enable the Director-General to carry out this arrangement at a very trifling cost to the public; and it is surely not too much to expect that an act of such obvious justice should at once be sanctioned by the Minister of State for War. Such an increase is indeed the only suggestion for the improvement of the department which was made to the Committee by the Adjutant-General.

Promotion.—The next point of importance to which we shall refer is comprised in the following paragraph in the Surgeons' Memorial:—"With regard to promotion, we trust your Lordship will not consider us presumptuous if we take the liberty of pointing out to you the necessity and expediency of some fixed principles being established whereby it should be regulated." In his observations on this paragraph, and also in a letter to Dr. Hall, dated the 17th of August, 1855 (p. 298), Dr. Smith asserts that the promotion is conducted on a definite plan; he says, "A fixed principle is, as far as practicable, observed; seniority is the general rule, and is only inoperative when the interest of the service, or of the department, appear to render another practice necessary;" and he proceeds to detail what these circumstances are. This statement, however, of the general principle on which promotions are said to be recommended, does not accord with that subsequently given in his evidence before the Committee. For in his examination on the 1st of May, 1856, he was asked,

"What is the general rule in recommending an assistant-surgeon to be made a full surgeon?—*A.* The senior is promoted invariably, unless there is something in the senior that renders it improper that he should be advanced.

"*Q.* 109. Have you observed that rule also in other cases of promotion in the higher ranks?—*A.* No; the established rule with regard to them is selection."

So that it appears that in the case then under consideration—for it was with reference to the Surgeons' Memorial that the first statement was made—the "fixed principle" of promotion was the very reverse of that which he stated for Lord Panmure's information. In a subsequent examination, Dr. Smith detailed at some length the mode in which promotions had been made since his accession to office, and stated that he had "exercised to a very small degree the principle of selection;" and that only in very strong cases. But it also appeared that the regulations on the subject of promotion were among the *leges non scripte* of the department; that they were contained chiefly in letters extending over forty years, and that they did not exist in any codified form. This is to be regretted, for so long as they remain undeclared, officers will continue to think themselves subject to the caprice of the head of the department, even when they are treated in accordance with rules laid down by the higher authorities for his guidance. The Director-General would act wisely if he were to have the rules drawn out clearly, and promulgated for the information of all whom it may concern.

But the question of the principle on which promotions are made, brought under the consideration of the Committee another subject of

great importance to the medical officers, although unnoticed in the Memorial and in Dr. Smith's Observations. It is that of

Confidential Reports.—It appears that the Director-General

"Receives yearly, sometimes oftener, from the principal medical officers of large hospitals or commands, reports in reference to the medical officers who have done duty under them, stating those that had been efficient and those that had not; those that had been indolent and those that had been active; also the qualification of all in every other respect"—and that he has been in the habit of making selections for promotion in accordance with the tenor of these reports. (Q. 110.)

- But these confidential reports are not communicated to the officers against whom they operate so injuriously, and an opportunity is not afforded them of explaining matters which may—very probably undesignedly—have been misrepresented to the Director-General. It is true that Dr. Smith says—

"If an officer was to complain to me that he was suffering seriously in consequence of some reason or other, in a way that he did not think he deserved to suffer, and if he claimed consideration or advancement, I would consider it then my duty to tell him why he was suffering. But I do not make it a rule to communicate the confidential reports."

But there are many officers who would submit to what they deemed an injustice without remonstrating, and who would probably attribute to personal feeling a course of conduct arising out of these reports. When an officer is not afforded an opportunity of refuting charges thus brought against him, the confidential reports, if incorrect, become anonymous slanders. This is not the case with the reports made by the inspecting general officers to the Commander-in-Chief. Lord De Ros states that in every instance in which an officer is reported upon, he is informed of it, and that no charge can be brought against an officer in the Inspecting-General's report which he has not an opportunity of answering. The Adjutant-General says:

"It is the invariable practice, when any unfavourable report is made of any officer, that that report is brought to the officer's notice through his commanding officer." (Q. 3270.)

And H.R.H. the Duke of Cambridge observes:

"I think that if a man is reported against for such neglect of duty as would bar his promotion, he ought to be informed of it; I think that no man ought to be put in that position without being informed of it." (Q. 3678.)

We trust that after the very strong expression of opinion against the existing practice, the designation "confidential" will no longer be deemed synonymous with "secret" reports. It is quite incomprehensible how such a system could ever have been tolerated.

Service in the Field.—The surgeons, in their Memorial,

"Suggest that active employment in the field should reckon as equivalent to three times the amount of ordinary service, and that colonial service should also receive some consideration above that passed in Great Britain."

But Dr. Smith objects to this, and as it appears to us with much justice, that service in some of our colonies is more destructive to health and more fatal than many campaigns. Again, if colonial

service were to receive the consideration thus recommended, it would be necessary to establish a sliding-scale according to the morbid character of the command. But Dr. Smith observes truly:

"That in the army, officers are compelled to serve where they are ordered, therefore the accident of some being on service in the colonies or in England, whilst others are in the field, is not the result of any act of their own, and therefore ought not to operate to their prejudice, the more especially because there are few of them who would not, if they had their choice, be with the army in the Crimea."

Among the subjects inquired into by the Committee, was that of the

Appointment of Dispensers; and from the time and care bestowed upon this portion of the investigation, it was evidently deemed a question of considerable importance. By the regulations of the army, medical officers are forbidden to employ the hospital sergeants or orderlies to compound the medicines, and are required to certify in their reports that they have not done so. A serious practical evil results from this: during periods of excessive sickness, or when there are many serious cases under treatment in hospital, the surgeon is obliged to devote a considerable portion of his time to this duty, when he might be more profitably employed in the wards; and from this, of course, the patients suffer. It has also the natural tendency to lead the surgeon to prescribe remedies which cause little trouble in compounding, in preference to those which he might otherwise select. The former of these evils was severely felt in the Crimea, and with a view to obviate it, Dr. Smith recommended the appointment of dispensers, with the rank of ensign, and the pay of 7s. 6d. per diem. They were mostly young men who had been employed for some time in chemists' shops, and passed an examination as to their fitness before a Board of Medical Officers. Such of them as were appointed to regiments were gazetted, and received commissions, while those employed on the staff were merely warrant officers. The plan as carried out seems to have met with general condemnation, both from the military and medical officers, Dr. Smith alone, of all the witnesses, expressing a favourable opinion of it. But even he did not approve of them being gazetted as officers, though it does not appear by whom that measure was adopted, contrary to his opinion; it certainly could not be any one practically conversant with military matters. The objections to these dispensers were, that they were not taken from that class of society from which officers are usually obtained; that from their previous habits, education, and position, they were not suited to take a position among the officers, and that, from the want of qualification, they could not hope for any further advancement in the profession. There cannot be a question that it must prove injurious to the department to create in it a rank having a low educational, professional, and civil status, and the members of which are without the greatest incentive to exertion—hope. The Guards are exempt from the operation of the general rule above quoted, and have a non-commissioned officer attached to each of their hospitals, whose sole duty appears to be to compound and dispense. It seemed to be the

general feeling of the witnesses that this system might be extended to the Line, and that a sergeant, receiving a moderate additional pay, would be much more suitable for duties of this nature than a commissioned officer. If we may judge from the very creditable appearance made by the Guards' sergeants when examined before the Committee, they are a class of men well qualified for such situations. We trust that the suggestions on this subject made to the Committee will receive due consideration, and that a superior class of non-commissioned officers will be created, fit to be intrusted with, and suitably remunerated for, the discharge of this important duty.

Another subject incidentally noticed by the Committee was the organization of

The Medical Staff Corps.—This body was raised to supply a want greatly felt in the early part of the war—that of hospital sergeants and servants, and if properly carried out would be a most valuable addition to the department. But, in the first instance at least, it seemed to share in the mismanagement which disgraced our military system; for Captain Bunbury, the officer appointed to raise it, says that he had no written orders to guide him; that his instructions were “merely to organize, clothe, and equip the corps as recruits came in.” The result was, that out of nine hundred and ninety-three men enlisted, five hundred and twenty-four were found ineligible “because they could not read and write, and because of their general appearance.” Dr. Mackenzie, who had to examine some of these recruits at Manchester, says:

“I was not informed whether they were required to be able to read or write, or whether they were to be physically more or less fit for the service than other men. When I asked them for what regiment they were intended, and they told me it was for the Medical Staff Corps, I looked up in amazement, never having heard of it before.”

Sir B. Hawes, the Deputy Secretary-at-War, admitted that,

“At first there was some misunderstanding, but latterly they have been required to read and write well, and to present general testimonials of character.”

He did not inform the Committee who was to blame for this “misunderstanding,” but we think it fair to state that Dr. Smith repudiated all responsibility in the matter.

The suggestions of the Duke of Cambridge as to the constitution of the corps and the mode of recruiting it, are those of a practical man acquainted with the subject on which he speaks, and deserve the serious attention of the authorities who are responsible for this branch of the service. The importance of training an efficient body of intelligent hospital-sergeants and dispensers, and of steady, reliable orderlies, cannot be over estimated, whether as regards the welfare of the sick soldier or the comfort and usefulness of the medical officer.

The preceding appear to be the chief deficiencies and grievances in the medical department of the army, and we trust the authorities, military and medical, will lose no time in having them removed. It is gratifying to find that, notwithstanding the injustice with which the medical officers have so long been treated, they have proved themselves,

according to the testimony of the highest military authorities who were examined before the Committee, to be zealous, efficient, and unflinching in the discharge of their duties, and humane and kind to the soldier. Lord De Ros, who was Quartermaster-General in Bulgaria, says—

“From what I saw of the department when illness broke out in the fearful manner it did at Varna, I was strongly impressed with the idea that it was impossible for any body of men to do their duty better, or with more zeal and kindness.” (Q. 2559.)

Sir Richard Airey, who held the same important appointment in the Crimea, corroborates this statement :

“I do not think it is possible that there could have been a more energetic, anxious, or active class of men in the world than they were.” (Q. 4392.)

And his Royal Highness the Duke of Cambridge, in confirming the testimony which he had formerly given before the Sebastopol Committee as to “the great exertions and philanthropy of the medical officers generally,” again observes—

“I had every reason to be well-satisfied with the great exertions of the medical officers.” (Q. 3641.)

In Colonel Tulloch's review of the proceedings and report of the Chelsea Board, there is no direct allusion to the army medical department. Sir John Hall appears to have deemed it more prudent not to appeal to that tribunal against the animadversions contained in the report of the Commissioners. He declined the opportunity offered him of explaining the charges brought against him, and thus virtually admitted the justice of the censure passed upon him by them. Under these circumstances, we should not have considered it necessary to notice this book, but in it Colonel Tulloch has been permitted to publish “The summary of information relative to the sickness, mortality, and prevailing diseases among the troops serving in the Crimea,” which Lord Pannure decided, when the original report was presented to him, “was not comprised in the instructions of the Commissioners.” The information now published has been so ably condensed already, that to give a correct idea of it would merely be to reprint the whole; we shall therefore only notice a few of the general results which corroborate in a most striking manner the conclusions at which we arrived in reference to the causes of the excessive mortality in the Crimea, from a careful study of the evidence taken before the Sebastopol Committee and the Crimean Commissioners.*

The total mortality *by disease* in the army in the Crimea during the seven months, from the 1st of October, 1854, to the 30th of April, 1855, amounted to 35 per cent., including the deaths at Scutari and in the hospitals on the Bosphorus. The loss in the ill-fated Walcheren expedition amounted only to 10½ per cent. in six months, and during the Peninsular war it did not exceed 12 per cent. for a whole year. The proportion of deaths varied greatly in the different arms of the service in the Crimea. Thus, in the Cavalry it was 15 per cent., in the Ordnance 18, in the regiments of the Line it amounted to 39 per cent.; while in the Naval Brigade, “which took a very pro-

* See British and Foreign Medico-Chirurgical Review, Oct. 1855, and July, 1856.

minent part in the operations of the siege," it was under 4 per cent. But in the Line regiments there was a striking diversity in the rate of mortality—

"The average loss of four regiments which arrived in and about January, and did not, for nearly a month, take any part of the duties in the front, was only 7 per cent. The average of four other regiments which arrived in December, and were sent immediately to the front, was 27 per cent. In the Highland Brigade stationed at Balaklava, the average was 2½ per cent.; while in the regiments employed in front, on which the duties of the siege chiefly devolved, the average was 45 per cent.; and, in eight of these corps which suffered most, it was 73 per cent."

In marked contrast to these, is the loss sustained by a detachment of 154 men of the 68th Regiment, "stationed at Lord Raglan's head quarters during the winter, and exempted in a great measure from the various heavy duties, exposure, and privations which affected the other part of the regiment," and which amounted only to 2 per cent.!

Various peculiarities attaching to the different arms of the service, explain in a great measure the exemption enjoyed by some of them from the excessive mortality which almost annihilated several Line regiments. Thus, the Naval Brigade had

"From three to four nights in bed for one on duty; their cooking was well arranged, and hot meals were always ready for them when they came from the trenches; they were well provided with boots, stockings, and clothing; and in addition to their rations they made good soup of ox-heads which they bought of the commissariat butchers for that purpose."

They also had arrangements by which, on their return from the trenches, they got their clothes and blankets thoroughly dried. The Cavalry "was entirely exempt from the labours of the siege; they had but little night duty; and being in the vicinity of Balaklava they had greater facilities for getting supplies." As regards the Ordnance,

"Two troops and one battery of artillery being constantly at Balaklava, were exempt in a great measure from trench duties; the men in the field batteries in front did not remain all night in the trenches. . . . The siege train companies remained in the trenches, but in a smaller proportion than the men of the line; and the batteries, having their wagons, were provided regularly with rations and other supplies, and were thus spared the fatigues they would otherwise have undergone for that purpose."

Each man also had an oil-cloth to lie upon, and was thus protected from the damp ground. The Sappers and Miners had two nights in bed for one on duty, and they had also

"An officer at Balaklava who purchased all kinds of groceries, flour, and other food for them from the shipping, whenever they could be obtained, and had them conveyed to the front on fifteen mules belonging to the corps, which were maintained effective throughout the winter."

It would thus appear that the exemption from mortality in the different arms, was in proportion to their exemption from night duty, and to their facilities for obtaining supplies of warm clothing and nutritious food. The same principle will account for the difference in the various infantry corps, the loss having been smallest in the corps which arrived after the period of great privation and exposure had passed; and next to that, in the Highland Brigade, which was much nearer

its supplies, had less trench duty, and was hutted at an earlier period than the regiments in front.

These facts fully confirm the conclusions we formerly expressed,* as to the causes which gave rise to the fearful mortality which nearly annihilated the Crimean force, and justify the question with which Colonel Tulloch closes the introduction to his very able book—

“With the graves of ten thousand of their countrymen before their eyes, with the mouldering remains of Britain’s choicest cavalry beneath their feet, and with an overwhelming mass of evidence in their possession, to show how much of this loss might have been averted by a proper application of the supplies, could the Commissioners be expected to arrive at the conclusion of the Board of General Officers, that for all this no one in the Crimea was to blame?”

After all that was said of the deficiencies of the Army Medical Department in the early part of the war, it is satisfactory to find by Lord West’s evidence, that the medical officers “are not in any way responsible for the great sickness that prevailed in the Crimea.” The Committee of the House of Commons also report, that having “had incidentally brought before them the admirable manner in which the army and civil surgeons have performed their duties in the East, your Committee are glad to take this opportunity of recording the high opinion they entertain of their merits.”

REVIEW IX.

The Census of Ireland for the Year 1851. Eleven Vols. Presented to both Houses of Parliament by command of Her Majesty.—*Dublin, 1856.*

WE propose in this article to give some account of the last Census of Ireland, that of 1851, in its bearings on the diseases of the country and on medical science, so far as it tends to illustrate the one and to aid in the advancement of the other.

We are apt to associate with the Census of a people little more than an array of figures in a tabular form,* restricted to the numbering of souls and the distinction of sexes. Such was its primitive limit. In progress of time, and especially in modern times, its character has changed; it has become developed, and expanded into a complex system, tabulating great general facts, and displaying the condition of society in most of the particulars capable of being expressed in numbers. This character is specially that of the Irish Census, so remarkable for its comprehensiveness, the labour involved in its details, the judgment displayed in its arrangement, and the collateral science and research brought in aid by which it has been enlightened, and made so interesting and instructive.

The comprehensive nature of this great work is well displayed by the parts into which it is divided. They are six, and the following: 1st, The Townland Census, in four volumes, detailing the Electoral divisions and the several townlands (of which latter there are 86,700 in Ireland), the area, population, and houses in each, distinguishing the

* British and Foreign Medico-Chirurgical Review, July, 1856. p. 118.

inhabited, uninhabited, and those building, in 1841 and 1851, according to provinces,—altogether constituting the most minute subdivision of the kingdom that has ever before been attempted. 2nd, The Agricultural Statistics for 1851, and in addition those of 1852, in two volumes, showing the number of holdings, divided into nine classes according to the area of the farms, the average under crops, and the quantity of live stock on each class of holdings, with sundry tables bearing on the rural economy of Ireland. 3rd, A Report in one volume on the Status of Disease in Ireland, giving the results of the first attempt ever made to ascertain in a single day of the year the amount of sickness, and the diseases of a temporary and permanent nature, by which the people at that time were affected,—a part to which the Commissioners justly attach much importance, as showing the numbers of the principal maladies, approximate and proportional, prevailing at the same time,—the numbers of the deaf and dumb, of blind, of the lunatic and idiotic, &c., of zymotic and sporadic diseases, distinguishing those found in hospitals, workhouses, &c., and specifying the more important by name, according to a nosological chart introduced with their synonyms, popular, local, and in the Irish language. 4th, A Report, in one volume, on Ages and Education in the several provinces, counties, baronies, and towns, giving the number, age, and per-centage of those who could read and write, read only, and who could neither read nor write, in 1841 and 1851,—also the number of schools and of scholars, with a table showing the number, by counties, of the Irish-speaking population. 5th, Tables of Deaths, and a Report on the Deaths, in two volumes, so far as could be ascertained in the absence of a general registration of births, marriages, and deaths, of which Ireland is the only country of the United Kingdom—nay, of any European kingdom—so destitute, a deficiency much to be regretted, and to which the Commissioners, with great propriety, urgently call the attention of the Government. Included in the same part is a tabulated abstract of cosmical phenomena, of epizootics, famines, and pestilences, extending from the earliest records to the year 1851. This, we understand, is the special labour of the Assistant-Commissioner, Mr. Wilde. It is a new feature in a work of this kind, and great credit is due to its author for its completeness. We shall presently have to recur to it. The 6th, and last part, is the General Report, containing the remarks of the Commissioners on the condition of the Irish people, under the several heads comprised in the preceding parts, with additional tables in further illustration, especially relating to the inmates of public institutions, their pursuits and degrees of education, house accommodation, condition as to marriage, Irish-speaking population, the occupations of the people, and the very important subject of emigration. These several parts are comprised in eleven folio Blue Books, the thinnest extending to 149 pretty closely printed pages, the thickest to 780, and altogether amounting to 4820.

We state these commonplace particulars the better to give some idea of the extent of the work, and the labour entailed in its elaboration. From its nature it is essentially one of reference. The short

notice we have given of its contents may serve as a guide, or a brief expositor to those who may wish to consult it on any of the many subjects it comprises appertaining to medical science and research.

Our further notice of it must necessarily be very limited. We shall begin with its most attractive and novel portion—that which constitutes the Reports on the Tables of Deaths, with the appended table of Cosmical Phenomena, &c., to which we have already referred. In this table we find briefly sketched the most memorable events recorded in history relating to unusual phenomena, meteorological especially; to epizootics, famines, and pestilences; showing on the whole a remarkable similarity, as if the past prefigured the future, and the almost present were a reflex of the past. The whole time to which the record extends is divided by the Commissioners into three principal epochs :

“The first or præchristian period, extends from the earliest times to which tradition refers,—when the first colonization of Ireland is dimly shadowed forth in the Bardic and legendary annals of the past, and before fixed history and chronology existed among the natives of this kingdom,—to the reception of Christianity by the inhabitants of Ireland, about the middle of the fifth century. The second, which may be styled the Historic period, in which the notices of plagues and famines become more distinct, and derive authority from cotemporaneous writings, extends from the Irish Christian era, dating from the arrival of St. Patrick, A.D. 432, to about the middle of the seventeenth century, when the adoption of a scientific nomenclature, the extension of medical knowledge, and the more general diffusion of literature through the art of printing, helped to dispel the mists of superstition and ignorance; when historians, both professional and general, began to describe with accuracy the history and symptoms of various maladies which affect the animal creation, and when authentic records of disease commenced to occupy the place of the barren historic annals which had hitherto merely related the circumstances of the wet, the drought, the plague, or murrain. The third period, which we (the Commissioners) have nominated the scientific, extends from the year 1650 to the present time.” (Part V., vol. i., p. 2.)

The larger middle period the Commissioners have subdivided according to marked political events, such as the early Danish invasion, the later Anglo-Norman conquests—events materially affecting the people, by opening intercourse with foreigners, and favouring the introduction of new diseases. In the formation of this epitome, in which events are only noticed, authorities for the record are in all instances given, showing much curious and learned research, especially as regards the earlier period, when it would appear from clear evidence that Ireland was in advance of Britain, and bore marks of a remote colonization by a people not destitute of the arts, literature, and science, such as belonged to the more civilized nations of the ancient world. In glancing over this collection of events, and in passing from one period to another, we are reminded of a museum in which objects of art and science are arranged according to ages, and where, even by a rapid survey, some well-marked idea may be formed of the several stages of history to which the objects that meet the eye belong, one period in its occurrences well illustrating its antecedent, and the three together instructively contrasted.

We may adduce in proof an example or two from the cosmical or meteorological phenomena in the way they are described. In the early period we find showers of blood noted down as not of unfrequent occurrence, and other showers not less extraordinary—showers which in our own time, with the same appearance, lose their marvellousness their true nature being determined by the methods of science,—those called showers of blood being resolved, under such scrutiny, into either rain, coloured by red impalpable dust, or sand, the product of a volcano, or drifted from the desert by a hurricane, or the droppings of swarms of insects, their urinary excrement, consisting chiefly of lithic acid of the same colour. In like manner the reported, and in the olden time credited, turning of lakes and standing waters into blood, is now read and understood to be a phenomenon of colour, depending mostly on the appearance, in countless numbers, of red microscopic algæ, and of animalcules belonging to the class of rhizopodes. To give another instance: in 1695, a dew like butter, and so called, is reported to have fallen on the grass in low marshy places, and again in a subsequent year, and to have been used by the natives for the purpose of greasing the axles of their carts,—a phenomenon resolving itself, according to the observations of science, into the occurrence of a fungus of wonderfully rapid growth, the *othallium flavum* of Link, which occasionally, under peculiar states of atmosphere, suddenly appears, and, somewhat like butter in appearance, looks as if it had fallen from the air. In all times, let it be remembered that the ignorant are the representatives of the dark ages, and of the periods of fable and superstition, and that their accounts of phenomena almost always stand in need of enlightened interpretation.

To the medical inquirer, this tabulated epitome of events is chiefly interesting as marking the occurrence of epidemics in connexion with meteorological phenomena and a fluctuating state of society, especially as influenced by desolating war, or more desolating famine. The similarity of scourges to which the country has been subject is very remarkable, and is strongly displayed in these annals. The chief of them, even from the remotest historical period, have been the same as those which have desolated the country in our own times—viz., epidemic fevers of various types, dysentery and colic, or cholera, but more especially the two first, and traceable to similarity of causes. Famine, fever, and dysentery, it would appear, have been as constantly allied in Ireland at all periods, as they were in the Crimea in our gallant and ill-provided army before Sebastopol in the dreadful winter of 1854-5. For information on these important and deeply-interesting topics, this table of events is invaluable to the medical inquirer, and no doubt will often be referred to by him; and let us hope that, escaping the ordinary fate of blue-books, it will have, as it so much deserves, the attention of statesmen studying the causes of the well-being of a people, and the influences opposing that well-being. As the record approaches our own time it increases in fulness and completeness. The account of the last great famine and of the potato disease, and of the consequences of these on the population, is given in ample and impressive detail, and

in a very lucid manner; and such also, only in a less degree, in proportion to their degree of importance, is the account of some preceding potato failures, and of the years of scarcity resulting, accompanied by epidemic diseases of like kind.

It is curious to see how the fates of nations are sometimes influenced by apparently trivial causes. The steam-engine is one example of the kind as regards the potential and material prosperity of our country; the power-loom another. In Ireland, an exotic plant holds the same place as to its influence, but in an opposite line from the prosperous. Who, *a priori*, could have imagined that a tuber brought as a curiosity from the New World could, in the short historical time of little more than two centuries, have become what it has proved to be in Ireland—the main cause, when flourishing and yielding a good crop, of an increase of population exciting surprise and apprehension, and, when subject to disease and failure, creating a famine almost without parallel in the history of mankind for its destructive effects? In 1652, when this tuber was coming into use, the population of the whole of Ireland, we learn, was estimated as under a million—viz., 850,000; it rapidly advanced with the extension of the root, so that in 1841 it had reached 8,747,400! And it has been calculated that, had it not been interrupted in its progress, it would, in the present year, instead of being reduced to about six millions, have reached nine millions. Truly the potato is a vegetable of remarkable properties for good and for evil; under culture yielding more food in the same space than any other plant suitable to our soil and climate, per acre,—for instance, twice or thrice as much nutriment as wheat—and that nutriment, from the varied composition of the potato, more wholesome, when used by itself, and sustaining, than perhaps any other article of diet, with the exception of milk, and, we would add, the oat—and so easily cooked as to require only the simplest culinary art and means, and so palatable as, without addition, or the mere addition of a little salt, to be grateful to almost every taste; but on the other hand—to turn to its dangerous qualities—above the majority of plants, subject to disease. In a single week in 1846, the first of the famine years, we are assured that almost the whole crop was destroyed, occasioning a loss computed at little short of 16,000,000*l*. Moreover, strongly contrasted with wheat and other grains, the potato is of so perishable a nature, as to preclude the laying it up in store beyond a few months. With its introduction, and probably in part attributable to its use, cutaneous disease, especially leprosy, formerly so prevalent in Ireland, disappeared. And, we would ask, may not the little prevalence of calculous and gouty complaints, so remarkable in that country, be owing to the same cause? Of its deleterious influences, which are now so well known, we need not enter into particulars—influences passing into effects in these latter years, and so strongly exemplified in the recent history of the country, especially in those districts of it in which the potato had become the staff of life, the almost exclusive food of the people, and that people, owing mainly to their food, in the lowest condition, wretchedly housed, ill clad, ill paid, every way ill off—low in

mind as well as in corporeal vigour. So great, indeed, and potential has been the influence of the potato on the people of Ireland, that from the time it came into general use and took the place of a more varied and substantial diet, the quality of the potato crop alone may be received as an index of the condition of the people, as much so as the barometer is of the pressure of the atmosphere. We are assured that when the dependency on the potato was at its maximum, "it was not merely the food of the people, but supplied the place of capital and of a circulating medium"—that money-wages were then almost unknown—and that then the coarsest kind, the lumper, was planted in preference, because most productive.

Not the least valuable part of these annals is that recording the state of the weather and seasons, drawn up from various sources, but till very recently only from very incomplete meteorological observations, the barometer, it would appear, not having been mentioned till 1744, and the thermometer not till even later—viz., 1750. Situated as Ireland is, at the north-western extremity of Europe, exposed to the full influence of the northern branch of the gulf stream which sweeps its shores, its climate is marked by peculiarities. Professor Lloyd, in his "Notes on the Meteorology of Ireland," states that its winter temperature is as high as that of the southern shores of the Euxine, while, on the other hand, the great precipitation of vapour due to the same cause, gives it a summer heat as low as parts of Finland." This peculiarity is well marked in the tables of the Census, showing the temperature of the seasons, and the mean quantity of rain in the several seasons. In Dublin, according to the Ordnance observations, extending from 1831 to 1852, the mean temperature of spring is 43°; of summer, 54·9°; of autumn, 53·2°; of winter, 42·7°; the maximum mean summer heat being only 74·3°, and only in one year so high as 80°. According to the same observations, extending from 1837 to 1852, the average fall of rain in spring was 5·21 inches; in summer, 6·25; in autumn, 7·62; and in winter, 7·66. The number of days in which rain fell, more or less as to quantity, being, in spring, 53; in summer, 51; in autumn, 58; in winter, 58; making an average total for the year of 21·54 inches, and of 220 rainy days; whilst in London the yearly average is about 25 inches, and 175 days. These figures, both as to temperature and rain, seem to denote great equability; yet in respect to both there is a capriciousness. It would appear that changes are sudden from wet to dry in excess, and in occasional years probably exceeding even the proverbially mutable climate of England—the tendency, however, being to excess of moisture, and danger of failure of crops from such excess. The character, too, of the country accords; a large proportion of the whole area of the island being raised only a few hundred feet above the level of the sea, with its great extent of inland lakes and of bog, and of uncultivated land but little removed from the state of bog. From the Census it would appear, that of the total face of the country, equal to 20,811,774 acres, no less than 631,210 were of water in 1851, and 5,023,984 were waste, chiefly, it may be inferred, bog. In casting the eye over the annals, one cannot fail of

being struck by the very frequent record of destructive storms and floods, and of inauspicious seasons productive of famine, referrible, in some of their worst effects, to the peculiarities of ground as well as of climate—any unusual fall of rain having so much more effect where so large a portion of country is constantly saturated with moisture, and where the general surface is so little favourable to drainage. This condition of climate and surface it is important to keep in mind,—both more favourable to pasturage and green crops, to the rearing of cattle, than to the growing of grain; and of the kinds of grain, less unfavourable to the hardy oat than to any other of the cerealia, especially wheat. It is well, too, to keep in mind, that whilst as a crop the oat is subject to fewest casualties in growth, it has this other great advantage, that both its grain and straw afford most substantial and sustaining food to man and beast, and that the former is admirably adapted to supply the place of the potato,* if the Irish people are to continue to experience improvement and advance, and not fall back again on a total dependency on that root, with all its consequent evils.

Another element bearing on the public health is the dwellings of the people. These in the Census have been divided into four classes, according to their quality :

“In the lowest, or fourth class, are comprised all mud cabins having only one room; in the third, a better description of cottage, still built of mud, but varying from two to four rooms and windows; in the second, a good farm-house, or in towns a house in a small street, having from five to nine rooms and windows; and in the first, all houses of a better description than the preceding classes.”

A comparison of the dwellings of the inhabitants as returned in the Census of 1841 and 1851, is very instructive, and most significant of the events of the period, as affecting the condition of the people and the change in progress. In 1841, the total of inhabited houses was 1,328,839; in 1851, it had fallen to 1,046,223—an enormous decrease, and happily confined to those of the fourth or worst class. Persons who have any knowledge of Ireland, and especially of its wilder parts,—those shaded most dark in the chart accompanying the Census showing the degree of education, and most light in that other showing the density of the population, parts in which the people are most scattered and least educated,—can well understand the significance of the change as regards the well-being of the people. By those who have not visited the country, and are only acquainted with the cottages of our agricultural labourers, hardly a notion can be formed of the extreme wretchedness of an Irish cabin—a damp earthen floor

* The following are the results of the latest analysis of this grain, made by Professor Norton and Mr. Furburg, selecting of the four kinds examined by them (the four differ very little in the proportions of their constituents), the Hopetoun, Ayrshire: Starch, 64·80; sugar, 1·58; gum, 2·41; oil, 6·97; casein (avenine), 16·27; albumen, 1·29; gluten, 1·46; epidermis, 2·39; alkaline salts and loss, 1·84. See *Journal of the Bath and West of England Society for the Encouragement of Agriculture, &c.*, recently published by Ridgway, in which, in a valuable paper by Mr. Pratt, On the Cultivation of Cereal Crops, the advantages of the oat are well pointed out, in relation to soil and climate, and comparative nutritive power. It is worthy of mention that the potato contains a vegetable acid; the quantity indeed is minute, yet its presence may be of importance. Both in its raw and boiled tuber we have detected it by litmus paper; its species we have not attempted to ascertain.

within, a fetid pool without, cattle and the human inmates under the same roof, a hearth without a chimney, and no egress for the smoke of the peat fire but through the door and the ventilating crevices in the mud walls and roof; in brief, the same kind of hovel as that described by Sir William Petty nearly two hundred years ago, neither better nor worse, and even when constituting the great majority of the dwellings, 160,000 out of the then total 200,000.

"Wretched nasty cabins, without chimney, window, or door-shut, even worse than those of the savage Americans, and wholly unfit for the making of the merchantieth butter, cheese, or the manufacture of woollen, linen, or leather."

On the diseases of Ireland, past and present, we have already said that the information given by the Commissioners, and especially by the Assistant Commissioner, is invaluable for reference. Limited as we are as to space and time, we must confine our notice chiefly to a small part of the whole, comprised in the 'Status of Disease,' and the 'Analysis of Tables of Pestilences and Tables of Deaths.'

The volume bearing the first title is designed, we have seen, to exhibit the existing diseases of the whole people, as collected in the first attempt ever made to form such a record—viz., on the night of March 30, 1851. The diseases enumerated, divided into permanent and temporary, are given under nine heads in sections: 1, the deaf and dumb; 2, the blind; 3, the lunatic and idiotic; 4, the lame and decrepit; 5, the sick in workhouses; 6, the sick in hospitals; 7, the sick in prisons; 8, the sick in asylums; 9, the total sick in Ireland. This total, including those labouring under permanent disease, was 104,495, or about one, it is estimated, in every sixty-two and a-half of the population, the proportion of the sexes being 100 females to 95·53 males. Satisfactory data are wanting for comparing the state of health of Ireland, as indicated by these numbers, with that of other countries. Judging, however, from the data we have, such as they are, the number of sick thus given for the entire population appears to be very small, and we can hardly avoid the conclusion that it has been under-rated. Amongst our troops on service in Ireland, from 1797 to 1828, the average daily sick was 51 per 1000, or one in every 19·6. Referring to the tables of the Scotch and English Benefit Societies, and the returns of the East India Company's labourers in London, of the age of twenty to forty, we find the average daily sick of the whole to be 14·3 per 1000, or 1 in 70. This last number denotes less sickness, indeed, than that assigned above to the whole population of Ireland, but in how small a proportion in relation to the difference of ages; on one part from twenty to forty, nearly the healthiest period of life, on the other, the entire period, with its extremes so prone to disease!*

Among the permanent diseases, the deaf and dumb hold the first place. Those congenital and becoming so after birth, are stated to amount to 747, of whom 2688 were males, and 2059 were females; the dumb, not deaf, are returned as 433, of whom 259 were males, and 174 females. The details respecting these unfortunate persons are

* See Army Statistical Reports, p. 16. 1839.

deserving not merely of perusal, but of careful study, were it only for the psychological bearing of the subject. Tables are introduced illustrative of particulars of most importance. In the table of occupations of the deaf mutes, 1917 of the whole are entered as known to be following some occupation, the remaining 2830 not being specified. The employments in which they are engaged are very various; sixty different ones are named; of the men the greater number are found following the occupation of labourers (636), and of servants (100); of the other sex the greater numbers are servants (160), and milliners and seamstresses (111). Respecting the degree of health of this class and the duration of life, there do not appear to be any well-marked peculiarities, excepting that, judging from the limited number of fatal cases tabulated, pulmonary consumption seems to be rather more fatal to them than to the population generally, being in the proportion of 1 in 3·26 of their entire number, confirming the opinion "that as deaf mutism itself is frequently a variety of struma, so the persons afflicted therewith are more particularly predisposed to diseases of a scrofulous character in after life."

The total number of blind in Ireland is stated to have been 7587, of whom 3588 are males and 3999 females, being in the proportion of 1 in 8·64 of the entire population, which, with the exception of Norway, would appear from the most recent observations to be higher than the average for Europe generally, and America. Comparing the town and country population, the former affords the highest number, which in the report is referred, and we doubt not justly, to a denser population, a condition increasing the risk of infection and the spread of the worst kind of ophthalmia, when once introduced. Much interesting information is furnished respecting the occupation of the blind, their education, &c. More than half of them are married, and about the same number of each sex—viz., 1992 males and 1994 females. Their length of life, it would appear, exceeds the average, the number of the age of forty and upwards being to those under that age as 5010 to 2577. According to history, Ireland has always been remarkable for the large number of its blind. Giraldus Cambrensis (we quote from the Report) says, that "so many persons born blind, so many lame, so many deformed, so many wanting some of Nature's gifts, I never met with in any other land;" and the older writings of the physicians of the country, still preserved in the Gaelic language, are said to be confirmatory of this, as well as the fact of the many recorded occasional outbreaks of epidemic ophthalmia.

The number of lunatics and idiots in Ireland was in all 9980, of whom 5074 were lunatics (2500 males, 2571 females) and 4906 were idiots (2666 males, 2240 females). The details on this subject to be found in the Report, with the tabular statistics and accounts of lunatic asylums, will amply repay the inquiring reader. We shall do little more than advert to the classes of persons affected, and their occupations. It is very worthy of remark that the proportion of insane in the town population, and in the professional class and the educated, exceeds that of the country, of the working and of the un-

educated class. Reviewing the total of the insane, excluding idiots, it would appear that the educated are to the uneducated in the proportion of 100 to 61, and dividing the whole number according to occupations into ten classes, it further appears that no less than 404 belong to the professional class, which amount exceeds by a considerable number all the other classes specified, with the exception of the large agricultural one, giving rise to the remark that "this preponderance of mental disease among the professional and upper classes, shows how much more education and habits of thought tend to produce aberration of intellect than ordinary manual labour," qualifying the remark, as we believe truth requires, by prefixing unsound or ill-directed to education, and substituting irregular habits of life for habits of thought. Ireland now is honourably distinguished for the care taken of the insane, and for the many excellent asylums provided for them. It is a distinction, however, gained of late years; even no longer ago than 1817, according to a report of a committee appointed to examine into the state of the pauper lunatics—

"When a strong young man is thus afflicted, the only way they have to manage him is by making a hole in the floor of the cabin, not high enough for the person to stand up in, with a crib over him to prevent his getting out—the hole about four feet deep. They give the wretched being his food in it, and there he generally dies."

Of the last class of those labouring under permanent diseases, the lame and decrepit, the total number returned was 4375, of whom 2320 were males and 2055 were females. The class is too miscellaneous, judging from the remarks in the Report, to allow of any useful deductions, especially as the return of the persons so affected is described as incomplete.

To those whose attention is directed to paupers, workhouses, and hospitals, valuable information will be found in the Report on all these subjects, with copious statistics. It is curious to find that at a very remote period, anterior to the introduction of Christianity, buildings were set apart for the reception of the sick and wounded :

"We read (it is stated in the Report) that when the regal residences of Tara and Emania existed, there was attached to the latter 'the House of the Crimson Branch,' where the warriors of old hung up their arms and trophies; and near to this stood the *Brein Beary*, or the 'House of Sorrow,' where the sick and wounded were provided for."

It is also remarkable, as pointed out, considering how leper hospitals and monastic hospitals had been early established in Ireland, indicating unusual regard for the infirmities of our fellow men, that no record of any civil hospital in the capital of the country is found to exist previous to the eighteenth century,—a city now so amply provided with institutions of the kind, and with a medical school attached and dependent on them, of a high character and well-earned European reputation.

Of the great division, that of temporary diseases, of which the total has already been given—viz., 104,495—the sources assigned are the following—

Reported at home (rural)	41,836
„ (civic)	6,455
(Sexes nearly equal.)	
In general and fever hospitals, lunatic asylums, and others, for the blind, aged, and infirm, &c., and hospitals of gaols	9,078
(100 males to 77.65 females.)	
In workhouses and workhouse hospitals	47,126
(100 females to 84.54 males.)	

The tables given in the appendix to the Report on the status of disease are ample and instructive, considering them merely approximative, allowing for under-rating. Our limits forbid our dwelling on them. All that we can venture is to make a few selections. They are returned under two great heads—zymotic (epidemic, endemic, and contagious diseases) and sporadic diseases, and the latter are again subdivided into ten groups, according chiefly to the organs affected.

I. Zymotic diseases	34,998
II. Sporadic diseases—	
Of the brain and nervous system, and organs of sense . .	24,522
„ circulating organs	534
„ respiratory organs	10,509
„ digestive organs	4,511
„ urinary organs	289
„ generative organs	693
„ locomotive organs	8,822
„ tegumentary organs	7,167
„ uncertain seat	10,394
Accidental causes, such as burns, poison, effects of cold and starvation, &c.	1,224
Causes not specified	832
General total	104,495

We shall select from these groups a few particular diseases for brief comment. As their localities will be one point of comparison, and this according to provinces, it may be right to state *in limine* the population of each, as determined by the Census. Of the four into which the whole of Ireland is divided, Leinster, forming a considerable portion of the eastern coast, had in 1851 a population of 1,672,738; Munster, constituting the southern portion, 1,857,736; Ulster, the northern portion, 2,011,880; and Connaught, the western, 1,010,031; the chief local difference, apart from direction of aspect, being that the province of Leinster possesses a smaller proportion of sea-coast than either of the others, and is almost entirely without those deep inlets of the sea for which the others are remarkable.

The diseases which were found throughout Ireland most to prevail on the night the reckoning was made were, as of old and in all times, those of the epidemic kind, especially fevers, dysentery, and diarrhoea, amounting to 34,998, or one in three of the total sick.

“Great variety (it is remarked in the Report) existed in the provincial summaries for this class in proportion to the population; thus in Leinster and

Connaught one person in every 209 was returned as sick from some of the causes specified under the head of epidemic disease; in Munster, as one in 106; whereas in Ulster the proportion was only one in 432."

They add:—

"In examining more minutely into the distribution of the epidemic class of diseases, we find a remarkable difference in particular localities, being greatest in the city of Kilkenny and the counties of Clare and Kerry, the city of Waterford, and the town of Galway, in which localities the proportion varied from 1 in 55 to 1 in 54 of the population; and least in the counties of Antrim, Down, Armagh, Donegal, and Dublin, and also in Belfast town, showing in the former instance the effects of poverty and destitution in the production and maintenance of epidemic diseases, and in the latter of comfort, industry, and cleanliness, in maintaining a comparative immunity from diseases of an epidemic or contagious character."

Amongst the sporadic diseases, those of the respiratory organs are conspicuous, and especially consumption. On the 30th of March, 4182 cases of this malady were returned, and, according to provinces, as follows: Leinster, 1326; Munster, 1260; Ulster, 1104; Connaught, 492; or, in proportion to the population in the first province, about 8 in every 10,000 of the inhabitants; in the second very nearly 7; in the third little more than 5; and in the fourth, Connaught, a little under 5, about 4·88. Taking certain counties in these provinces, as Mayo in Connaught and Kildare in Leinster, the proportional difference in the prevalence of the disease is even more striking—in the first little more than 3 cases occurring in 10,000 of the inhabitants, whilst in the latter there are as many as 9·7. On referring to the map, these counties are seen lying on the very opposite sides of the island—Mayo projecting into the Atlantic, fully exposed to the west; Kildare, inland, lying low, the bog of Allen forming a part of it, yet at no great distance from the sea, and but little sheltered from the colder winds, the east and north-east. Besides difference of situation, difference of diet may be concerned in favouring more exemption from the disease in the western province and county than in the eastern. In the former it is probable that more fish is used, and generally a more plentiful diet than in the latter—sea-fish, which, containing iodine in its composition, there is reason to believe, checks the formation of tubercles, and tends to keep under the low scrofulous diathesis. Other facts have come to our knowledge favourable to this conclusion. We shall mention one: it is the remarkable exemption of the island of Lewis from phthisis—an island, the climate of which is peculiarly equable, and the inhabitants of which consume little animal food, excepting sea-fish, but of that a plenty.

Referring to the table of ages in the Census of persons labouring under consumption, it is curious to see the wide range of increase from infancy up to ten, and beyond up to twenty-five, when at about the maximum, and the diminution even more irregularly occurring with advancing years after twenty-five; and it is worthy of remark that up to sixty-five the proportional diminution is not considerable. Through the majority of ages, especially after puberty and till an advanced period of life, the disease shows a preponderance in the female sex,

being in the total in the instance of the male 1798, and in that of the female 2384. The latency and persistency of tubercles, indicated, we think, by the large proportion of elderly persons returned as labouring under phthisis, constitute a subject of inquiry which has not, we believe, received the attention it deserves. That such a state is not uncommon, we are satisfied; many of chronic catarrh we have known associated with tubercles in the lungs in those past the meridian of life; and many fatal cases—suddenly fatal owing to accidental violence—have come under our observation, in which tubercles existed in these organs, without having been suspected, or sensibly impairing the general health.

The rarity of some diseases, as shown by the Census tables, is remarkable, such as ague (201 cases, probably a large proportion of them imported), delirium tremens (9), syphilis (824, chiefly occurring in garrison towns), gonorrhœa (79, to which the same remark applies), stone (32), other diseases of the urinary organs (257), gout (51). The moderate prevalency of certain other sporadic diseases is not so remarkable, such as rheumatism (3953), ulceration (2616), itch (1193), scrofula (2654), dropsy (1464), and need no comment.

We pass now to the Analysis of Tables of Pestilences, and Tables of Deaths, and with a feeling of regret that the notices we shall have to offer must, in relation to the importance of the subjects, be commensurately short.

Of the total deaths returned for the decennial period between 1841 and 1851, amounting to 1,361,051, as many as 553,801 were owing to epidemic diseases, equal to 40.6 per cent. of the entire mortality—a circumstance not surprising, considering that the famine period is included in the decennium, arising out of the destruction of the potato in 1846, and the following years. The most destructive of all these diseases were fever, dysentery, and diarrhœa, the almost invariable and dire accompaniments of famine. These together swept off 366,584 of the population—fevers 222,029, dysentery 93,232, diarrhœa 41,323. The other diseases belonging to the zymotic or epidemic class next in degree of fatality were, cholera and small-pox, measles, scarlatina, hooping-cough, and croup. Cholera occasioned 35,989 deaths; small-pox, 38,275; measles, scarlatina, hooping-cough, and croup conjointly, 100,141: of these scarlatina, the least destructive, was fatal to 20,175.

Of the diseases or causes of death not belonging to the zymotic or epidemic family, but in part arising out of the famine, the more remarkable were those included under scurvy, infirmity, debility, old age, and starvation. The mortality from these reached the vast amount of 155,693, of which total deaths 21,740 were attributed to starvation. To these might be added 15,000 more, partly of like origin—viz., marasmus (6805), dropsy (662), ulceration (3634), mortification (3901).

Of the more ordinary diseases, pulmonary consumption, as usual, holds the highest rank as to fatality. The deaths from it are no less than 153,098—75,240 males, 77,858 females. The information respecting this malady contained in the several tables of mortality, accords, as

nearly as could be expected, with that afforded in the tables already referred to of existing diseases, collected on the night of the 30th March. And making a like comparison as to localities, the results before obtained are tolerably confirmed. Thus, whilst the per-centage of deaths from phthisis in Connaught was only 7.6 of the whole mortality of that province, in Leinster it was 14.7; and whilst only 5.9 per cent. of the whole in the county of Mayo, it was as high as 19.8 per cent. in the county of Kildare.

Of deaths from other diseases, we shall mention only a few, and these,—with the exception of one, convulsions, from their comparative unfrequency, not needing special notice,—such as the following:—Gout, occasioning 272 deaths; diabetes, 158; stone, 35; aneurism, 187; empyema, 93; delirium tremens, 91; but convulsions, 43,167! In the instance of this last disease, it is worthy of remark that as many as 27,914 died under twelve months—viz., 16,017 males, and 11,897 females.

Deaths from violence, and sudden deaths, have received, as might have been expected, the careful attention of the Commissioners. In tabulating them, two divisions have been made—one including those on which inquests were held, the other those on which no inquests were held—taken from the police reports made to the Inspector-General of Constabulary. Under the first, 29,265 deaths are returned, 20,866 males and 8399 females. Under the second, 333—of whom 277 were males, 56 were females. The deaths on which inquests were held are subdivided into three classes: 1st, deaths by violence, neglect, evil intent or design, amounting to 2374—males 1589, females 785; 2nd, suicide, amounting to 841—males 573, females 208; 3rd, accidental deaths without design or intent, amounting to 12,717—males 9158, females 5021. The following excerpts are very significant, and are given as examples:—

	Murder.			Infant-icide.	Desertion & exposure.		Suicide.			Suffocation by limekilns.	
	M.	F.					M.	F.		M.	F.
Leinster ...	94	41=135	...	50	...	369	...	191	85=276	71	3=74
Munster ...	127	44=171	...	107	...	52	...	149	66=215	129	6=135
Ulster ...	22	6=28	...	123	...	63	...	165	83=248	7	4=11
Connaught	118	46=164	...	60	...	24	...	68	34=102	3	3=6

The details recorded in the Census tables as to sex, age, locality, whether civic or rural, afford important data bearing on the history of man in his social relations, and the influences to which he is exposed. Merely considering the general numbers, we see in the return of deaths on which inquests have been held, how the male sex preponderates. The same preponderance, it is worthy of note, appears more or less marked in the tables of deaths from diseases of an acute kind: even in infancy it is shown under the head of convulsions. Is not the inference, then, fair, that in the male sex the tendency is to morbid action in excess, or to the sthenic diathesis, and that the opposite, or asthenic, rather belongs to the female sex?—as seems to be indicated, also, by the diseases to which they are in a higher ratio subject, such as phthisis

and marasmus. As regards crime and acts of violence, we do not offer these remarks anywise apologetically; we would suggest them rather to the reflecting as a reason for exercising control and keeping in subjection that *vis insita* so apt to be in morbid excess, and, acting mentally, productive of crime and insanity, and bodily, producing disease and shortening life. In the instance of murders returned for the several provinces, it is satisfactory to find how comparatively small is their numbers, especially contrasted with suicides; and also that the smallest number has been committed in the one, Ulster, the population of which is reputed to be best educated, most industrious, and prosperous. Less satisfactory is the fact of the large proportion of suicides in the same province; but this is in accordance with another fact already alluded to, as denoted by the Census returns, that the [ill?] educated are more subject to insanity than the uneducated. We have alluded to the greater average age of the female sex: it is a curious fact, and seems to be well established by the Census tables, that comparing the persons of very advanced age in Ireland and England, notwithstanding the great disparity as to the amount of the population in the two countries, there is a larger number of and above 100 in the former than in the latter—viz., 711 in Ireland to 319 in England.* May not this, too, be owing to the same cause, a less demand on the *vis vitæ*, in connexion with a lower kind of diet, and that productive of less action, less injury of the organization, and clogging (if the expression may be allowed) of the vascular system, produced by atheromatous and ossific deposition?

One topic more that we must notice, regretting it must be so briefly, is that which has been well illustrated in the Census tables—viz., the seasons in connexion with disease. The freedom, with occasional and rare exceptions, of the climate of Ireland from malaria—that is, from the cause productive of ague—is perhaps as remarkable as the frequent presence and intensity of those causes which are productive of endemic and epidemic fever not of the intermittent kind, and of dysentery and diarrhoea.

“We attribute (say the Commissioners) the comparative immunity which the inhabitants of Ireland have had from ague, to the circumstance of the almost total absence of marsh or fen.”

Adding :

“The extraordinary rapid growth of mosses, &c., while they have by accumulation of vegetable matter produced bog to so great an extent in Ireland, are not subject to those annual decompositions affecting the atmosphere, which have by other plants in all countries [we would rather say in so many countries] and in all times assisted to taint the air and produce disease either in the natives or strangers residing in the vicinity of the marshes in which they grow. Moreover, our bogs, from containing so large a quantity of tannin, may prevent their acting injuriously on animal life.” “And thus,” observes the writer of the ‘Reports upon the Tables of Deaths in 1841,’ “I am led to believe that the bogs of this country—the water of which thousands drink, and on the borders of which thousands live with impunity—do not in any way conduce to the propagation of ague, and much less than is generally supposed to that of other epidemic affections.”

[* We may be allowed to suggest that this is in part accounted for by the absence of sufficiently authenticated records.—ED.]

A like and more remarkable immunity from ague is described as experienced in the pine swamps of Virginia.* It is worthy of remark also, that wet seasons in Ireland are considered generally, though not without exceptions, the most healthy, especially as regards those formidable and ever-recurring diseases, fever and dysentery. As to the climate of Ireland, in relation to the production of these diseases, there seems to be a good deal of obscurity. Etiologically we are disposed to infer that it is rather negative or passive, or at most at times merely predisposing, than in any of its peculiarities positively active; and that the engendering circumstances of both diseases are rather to be sought for in the unwholesome, crowded state of the dwellings of the inhabitants, and a poor, and in a famine period unwholesome, diet, than in any noxious element existing *per se* in the atmosphere. But the subject is too large to be treated summarily. An opinion is quoted in the Report, that for the last one hundred and fifty years fever has raged decennially in Ireland, without any very obvious cause. The epidemics enumerated following each other so rapidly, hardly accord with the opinion: they accord better with the commonly-received conclusions, that want, squalor, and fever are more associated in the way of causation—a conclusion clearly adopted by the Commissioners of Health, who, in their Report on the last great epidemic, state—

“It is impossible not to be struck with the coincidence between the scarcity and consequent high price of potatoes and the prevalence of fever. In 1846, the scarcity was first felt, and fever began to show itself, and as prices still continued to rise in the winter of 1846 and spring of 1847, the effects of a want of food were seen in an alarming increase of fever; and during the years 1847 and 1848, and the greater part of 1849, the prices continued so high as to deprive the poor of their accustomed food, and notwithstanding all the long-continued and benevolent exertions of Government and individuals, an epidemic of an unparalleled severity and extent continued its ravages.”

In accordance with this, the tables of death show that the mortality from fever, as well as from the other great epidemics, was remarkably least in that province in which, from the estates being larger and manufactures affording an aid to agriculture, the distress of famine was least experienced—viz., Ulster. For the sake of comparison, we insert the following:

Deaths from	Leinster.	Munster.	Ulster.	Connaught.
Fevers . .	47,405 ...	87,711 ...	41,818 ...	45,065
Dysentery .	11,306 ...	43,930 ...	12,384 ...	25,612
Diarrhœa .	8,193 ...	16,404 ...	9,321 ...	7,405
Starvation .	11,027 ...	9,346 ...	1,165 ...	10,232
Totals .	77,931 ...	157,421 ...	64,688 ...	88,314

The connexion of the weather, the seasons with proportional mortality is far better determined. From the summary of these, as given by the Commissioners, it appears—reviewing the whole decennial period, that the maximum of deaths from all diseases was during the

* A Journey in the Seaboard Slave States, with Remarks on their Economy. By F. L. Ormsted. London, 1846.

harsh and uncertain weather of spring; that the number diminished with the warm weather of summer, and still more with the mild and more constant weather of autumn, increasing with the cold and greater variability of winter. The precise number of deaths returned under each season is the following:—Under spring, 443,182; under summer, 373,748; under autumn, 192,005, or 25,177 less than in spring; under winter, 340,787. Even dysentery and diarrhoea are not exceptions; indeed, on examining the whole of the great groups in which all the deaths from disease are arranged, we do not find—and it is very remarkable—a single exception, not even in the class of violent and sudden deaths.

We must now, however unwillingly, draw to a conclusion, necessarily passing over many important subjects—important even in vital statistics—in the folios before us. The period included in the Census, short as it is—a single decennium—will always be memorable in the history of the country, and the future historian cannot fail of having a grateful feeling towards the Commissioners, Dr. Donnelly and Mr. Wilde, for the vast amount of valuable information which, with so much industry and ability, they have brought together, and more especially relating to the great events of the time,—the failure of the potato crop, suddenly stricken with disease and rot—the famine and pestilence ensuing—and the emigration, with their accompaniments, many of them so terrible, and their consequences, some of them, we rejoice to think, so auspicious. We have already expressed our opinion of the records of these events, as detailed in the Census; we can honestly say that we have never read, whether in history or romance, descriptions of wretchedness, suffering, and degradation so afflicting, and politically so instructive, as those we find in these annals. Here is one picture taken from these records:

“December, 1846.—A terrible apathy hangs over the poor of Skibbereen; starvation has destroyed every generous sympathy; despair has made them hardened and insensible, and they sullenly await their doom with indifference and without fear. Death is in every hovel; disease and famine, its dread precursors, have fastened on the young and old, the strong and the feeble, the mother and the infant; whole families lie together on the damp floor, devoured by fever, without a human being to wet their burning lips or raise their languid heads; the husband dies by the side of the wife, and she knows not that he is beyond the reach of earthly suffering; the same rag covers the festering remains of mortality and the skeleton forms of the living, who are unconscious of the horrible contiguity; rats devour the corpse, and there is no energy among the living to scare them from the horrid banquet; fathers bury their children without a sigh, and cover them in shallow graves, round which no weeping mother, no sympathizing friends, are grouped; one scanty funeral is followed by another and another. Without food or fuel, bed or bedding, whole families are shut up in naked hovels, dropping one by one into the arms of death.” (*Cork Examiner*.)

And, such as this picture, there are many more we have marked, of famine-horrors not less distressing and heartrending, which we will spare our readers the infliction of reading. Let us pass to the results—the happy consequences, which are hardly less remarkable than their deplorable antecedents, and we would fain hope will more than

compensate for them, in conducing to a healthier state a more prosperous and less precarious future.

To recapitulate very briefly, even at the risk of some repetition on one side—the disastrous side—we find a diminution of population, from excess of deaths over births, and from emigration, to the enormous amount of 2,466,414; on the other—the prosperous—side we find, using almost the words of the Commissioners, a great advancement of the country; the extent of arable land and the value of farm-stock increased, with a decrease of the very small holdings and an increase of the larger; the worst class of houses in course of being replaced by a better, a smaller proportion of families dependent on their own mere manual labour for support; and the education of the people in favourable progress with increased means, more schools, and augmented Government aid. It may be well to show these ameliorations numerically. 1st. Of the dwellings, the indications of comfort; the decrease of cabins has been to the amount of 355,689! the increase of dwellings of the better class to that of 73,073. 2nd. Of means of livelihood. In 1841, 42.96 per cent. of the entire population were engaged in some occupation or profession; in 1851, the proportion had increased to 43.37 per cent., whilst those depending on their own manual labour had decreased 18.9 per cent. 3rd. Of education. In 1851, 5 per cent. more of the population, of the age of five and under sixteen, were at school, than in 1841; and there was a decrease of the proportion of those who could neither read nor write of 4 per cent. males and of 8 per cent. females. Coincident for the most part with these ameliorations, and mainly connected with them as causes or effects, are some others, such as the opening of inland communication by railways, a closer union with England, and freer intercourse by steamers; the exchange of landed property from insolvent to solvent hands, due to the Encumbered Estates Act; the introduction and diffusion of more capital; a better and more active agriculture, denoted not only by the increase of arable land and the increased value of stock, but even more by the diminution of waste land—viz., from 5,209,492 acres to 3,851,793 acres, and the augmented number of agricultural societies; the better condition and means of life of labourers, and it is believed a better quality of labour from money-payment of wages, and increase of wages from 6d. and 8d. a day to 1s. and 1s. 6d.; and, through the operation of the New Poor-Law, an increasing attention and regard on the part of the rich towards the poor; lastly, not to omit an important element, the existence of an admirably-organized and disciplined police-force, composed of natives, chosen irrespectively of religious creed, and yet acting in harmony—most usefully employed in the public service, the conservators of peace and order, and at the same time available and efficient whenever combined intelligence and activity are needed by the Government, so that through them “the most extensive inquiry can be conducted in Ireland with as much precision and exactness as a model operation on the most limited scale.” This has been said of this force by one thoroughly acquainted with them, and we have pretty good proof of its correctness in the circumstance of the police

of Ireland having been, as we are assured by the Commissioners, the executive machinery, as enumerators, in collecting the materials of the Census.

Marvellous indeed are the changes and the ameliorations in their totality in so short a period, and most of all considering to what they are principally owing. Let us hope that as the great causes of Ireland's disasters are now so well known, they will be avoided in future; and then, if only justice be done to the people, and they are just to themselves, humanly speaking, reckoning on the capabilities of the country, the career of its prosperity may be pronounced to be certain and almost boundless, and happy, twice happy, the future.

"O! fortunati nimium, sua si bona norint."

REVIEW X.

Guy's Hospital Reports. Edited by SAMUEL WILKS, M.D. Lond., and ALFRED POLAND. Third Series. Vol. II. — London, 1856. pp. 428.

THE second volume of the third series of the 'Guy's Hospital Reports' equally merits the praise, which we bestowed upon the first. It contains twenty original communications and eight lithographic plates. The following is an analysis of its contents:

I. *Myeloid Tumour of the Scapula*, by EDWARD COCK; with a *Description of the Growth*, by SAMUEL WILKS, M.D.—This tumour, which weighed a pound, was removed from the spine of the scapula of a female aged twenty-seven. It consisted of a bony cyst, containing a white curdy substance. This presented the myeloid structure which has been described by Lebert, Paget, and Gray, and to which we have recently had occasion to allude.* There was nothing "malignant" in the history of the case.

II. *Third Septennial Report of Guy's Lying-in Charity.* Also *Report of the Lying-in Charity for Twenty-one Years.* Collated from the Records by S. J. C. NORMAN. Presented by J. C. W. LEVER, M.D., and H. OLDHAM, M.D.—These reports consist of a series of statistical tables, which, considering the large number of cases from which they are compiled, are of considerable interest and value. During the twenty-one years (October, 1833, to October, 1854), 22,458 women were attended by the pupils of Guy's Hospital in their confinements.

It is stated that 21,553 children were born alive, while 1128 were still-born; and of the former, 52.3 per cent. were males, of the latter 61.7 per cent.; thus showing an excess of nearly $9\frac{1}{2}$ per cent. in the males still-born, as contrasted with the males born alive, and a corresponding deficiency of the females still-born. This disproportion between the number of male and female still-births, which is accounted for by the larger size of the head in the former case, and the

* British and Foreign Medico-Chirurgical Review, vol. xix. p. 337.

consequent longer duration of labour, is even less than has often been observed.

Table VI. (p. 43), which shows the varieties of labour in 22,498 confinements, is worthy of attention. We find that perforation of the child's head was had recourse to in eighty-two cases, while Cæsarean section was performed twice. In one case of Cæsarean section, both mother and child died; in the other, both survived.

Seven cases of rupture of the uterus occurred during the twenty-one years, all fatal.

Twenty-seven cases of puerperal convulsions are reported. In twenty-one of these cases, the urine was examined, and, with one exception, found to be albuminous, the convulsions in the exceptional case depending on arachnitis. The coincidence of albuminuria and puerperal convulsions was, we believe, first pointed out by Dr. Simpson in 1841; and the recent researches of Frerichs and Braum leave little doubt, that all cases of true eclampsia result from uræmia in the course of acute Bright's disease.

The total number of deaths of mothers was 160, or 1 in 140.

In one case labour occurred (the uterus acting "powerfully") in a woman affected with perfect hemiplegia and incomplete paralysis of the other side.* Such cases disprove the doctrine of Marshall Hall and others, that uterine action is dependent on spinal influence, and tend to show, as urged by Drs. Simpson and Lee, that it is rather of a reflex ganglionic nature. Dr. Simpson's view is also confirmed by his observation of contractility remaining in the uterus of the pig, twelve hours after removal from the body.

III. *Select Cases.* By H. M. HUGHES, M.D.—The first of these cases is one in which the urine assumed a brownish-black colour while the patient was taking creosote. There was no deposit on standing, and nothing revealed by microscopic examination. The colour was unaltered by heat, nitric acid, or liquor potassæ, even when boiled with it. Similar cases are stated to have been observed by Drs. McLeod, Marcet, and Elliotson; and Dr. H. Weber has recently ascertained that the inunction of tar produces occasionally the same result. Dr. Hughes confesses his inability to give any explanation of this curious and rare consequence of the use of creosote.

Dr. Hughes also records a case of intussusception, in which "the whole ascending colon, the cæcum, and an unascertained portion of the ileum, had passed into the transverse and descending colon and rectum;" and another of emphysema of the abdominal parietes, proceeding from perforation of the rectum by the careless introduction of an enema tube. •

IV. *On Hernia; with an Analysis of 126 Fatal Cases.* By THOMAS BRYANT.—The author commences his observations by answering the questions, "What form of hernia is most common? what form most frequently requires operation? and which is most fatal?" This he does by appealing to the statistics of the London

Truss Society. Of 84,478 cases of hernia, 88.8 per cent. were inguinal and 11.1 femoral. Of 281 cases requiring operation, the femoral exceeded the inguinal by 25.2 per cent.; and of 160 cures after operation, inguinal bore the proportion to femoral of 36.1 to 63.8.

In the analysis of 126 fatal cases, numerous tables are given, the chief results of which are contained in the following important "conclusions:"

"Inguinal hernia is more common than femoral, commences earlier in life, is less liable to strangulation on its first descent, and generally exists twenty years before it becomes so; requires operation less frequently, but is more fatal; is less frequently associated with gangrenous bowel, but more frequently with ulceration at the line of stricture.

"Femoral hernia is less common than inguinal, seldom appearing before fifty years of age; is more frequently strangulated on its first descent, but generally averages eleven years' existence; more frequently requires operation, but is less fatal; and is generally strangulated for a longer period before relieved. After operation, femoral hernia is more frequently followed by sinking than inguinal."

V. *On Concealed Accidental Uterine Hemorrhage.* By HENRY OLDHAM, M.D.—Dr. Oldham's paper contains a notice of four cases of accidental hæmorrhage, in which the blood was retained within the womb, little or none escaping externally. The rarity of the accident is shown by only three cases occurring out of 22,498 deliveries at Guy's Lying-in Charity. All of these three were fatal. The fourth case recorded—that of a lady—recovered.

VI. *Cases of Lardaceous Diseases, and some Allied Affections; with Remarks.* By S. WILKS, M.D.—Under the term "Lardaceous," the author has described those affections of the liver, spleen, and kidneys, which in this country more commonly are known under the designation of *Waxy*. Forty-five cases of the disease are recorded in the paper.

This affection has been, and is still, very generally confounded with Fatty Degeneration, and even Rokitsansky has described them as mere varieties of the same disease. The points of distinction, as regards the liver, were described by Dr. W. T. Gairdner, of Edinburgh, in a valuable paper, published in the 'Edinburgh Medical Journal' for May, 1854; the characters of waxy disease being great density, no increase of oily matter, but a substitution for the natural secreting tissue of a dense albuminous material: whereas in fatty degeneration the specific gravity is reduced, and a large quantity of oil is deposited in the cells of the normal tissues.

Dr. Wilks's description of the structural peculiarities of this lesion bears a very close resemblance to that which was laid before the Physiological Society of Edinburgh by Drs. Gairdner and Sanders, in 1851,* and we are somewhat surprised to find no allusion whatever made to their valuable researches.

* Monthly Journal of Medical Science, vol. i. pp. 186, 293. 1854.

The clinical distinctions between waxy and fatty kidney have been lately made a subject of observation by Dr. Todd.*

Dr. Wilks has observed a curious connexion between waxy disease and disease of the bones. Thus, "out of thirty-six cases of lardaceous viscera, sixteen had necrosed bone, and eleven very evident disease of a syphilitic or other affection of the osseous system."

VII. *Report of the Post-mortem Examination of the Cases of Burn occurring during the last Year and a half, with reference to the Condition of the Duodenum.* By S. WILKS, M.D.—Dr. Wilks brings forward twelve cases of burn, proving fatal after the third day, and "in no case was there any disease discoverable in the duodenum." These observations are opposed to those of Mr. Curling, who, in the twenty-fifth volume of the 'Medico-Chirurgical Transactions,' recorded twelve fatal cases of burn, in all of which there was either inflammation or ulceration of the duodenum, as evidenced by inspection after death, and vomiting and purging of blood during life. The cause of this difference as to facts, it is endeavoured to explain, by the practice of giving children ardent spirits immediately after the receipt of burns being now obsolete.

VIII. *Brief Report of the Post-mortem Examinations of the Cases of Fever which have Died in the Hospital during the last two Years.* By S. WILKS, M.D.—As we have already had occasion to notice,† Dr. Wilks fully recognises the distinction between the two forms of fever, typhus and typhoid, in the cases occurring at Guy's Hospital. The only observation in the present paper to which we shall allude is this, in reference to typhoid fever:

"In three of the present cases, however, where the disease was not quite advanced to its height, some remarkable microscopical bodies were found. These consisted of rounded cells, containing numerous nuclei, which amounted in some to ten in number. They were found equally in the deposit of Peyer's patches and mesenteric glands."

These cells have been described and figured by Vogel, Wedl, and others, and the reason they have so seldom been recognised is, according to Wedl, that they cease to be distinguishable on the establishment of ulceration. It is still doubtful if they are characteristic of typhoid deposits.

IX. *Case of Paraplegia.* By WILLIAM GULL, M.D.—This paper contains the history of sixteen cases of paraplegia. In three cases the paraplegia depended on tumours pressing on the cord; in two of the three there were pain in the back, and involuntary muscular contractions of the paralysed limbs. In one, both these symptoms were absent; in this case there was also considerable softening of the cord. In two, the sensibility was either increased or unaffected; in one, impaired.

In five of the cases, inflammation of the spinal membranes was the

* Clinical Lectures on Diseases of the Urinary Organs. 1857.

† British and Foreign Medico-Chirurgical Review, vol. xvii. p. 218.

lesion, but in one of these cases the only paraplegic symptoms consisted in paralysis of the bladder and rectum. In four of the five cases, pain in the back was a prominent symptom; in one it was absent. In three out of four cases, there were involuntary spasmodic movements of the lower limbs; and in the fourth, though these were absent, there were "convulsive movements of the hands." In two cases, there were contraction and rigidity of the lower limbs, the heels in one being drawn up to the nates. In three cases, the sensibility was increased; in one, diminished; in one, completely absent; but in the two last cases, there was also softening of the spinal cord. In one instance paralysis of the upper extremities preceded that of the lower for some months.

In four cases, softening of the cord appeared the principal lesion. In three of these, pain in the back was either absent, or not a prominent symptom; in one it was severe, and in this case only was there also inflammation of the membranes; in two, involuntary movements were either absent or not mentioned; in one, slight; and in one, severe: in this last, there was also inflammation of the membranes. In all four cases, there was more or less anæsthesia.

In the remaining four cases, the paraplegia was produced by effusion into the membranes, with slight softening, lead poisoning (?), tumours in the substance of the cord, and enlargement with induration of the cervical portion.

From the above cases it would appear, that pain in the back, and involuntary movements of the paralysed limbs, are more common symptoms in affections of the membranes than in softening of the cord, and anæsthesia a less frequent one.

X. *On the Parasitical Vegetable Nature of Pityriasis Versicolor.* By W. GULL, M.D.—The author confirms the observations of Eichstedt on the dependence of pityriasis versicolor on the presence of a fungoid growth (*Microsporon furfur*), and gives a figure showing its appearance under the microscope.

XI. *Some Observations on the Abdominal Sympathetic Nerve, and on the Union of the Phrenic and Pneumogastric Nerves.* By S. O. HABERSHON, M.D.—The most important of these observations is the description of a ganglion, called the "diaphragmatic," situated behind the lobus Spigelii of the liver, close to the vena cava, and formed by the union of branches from the phrenic and pneumogastric nerves and semilunar ganglion.

"The use of the diaphragmatic ganglion appears to be to bring the diaphragm into intimate relation in its action with the abdominal viscera, and to unite the digestive and respiratory and cardiac centres of the sympathetic nerve."

Various sympathetic phenomena are mentioned, to the production of which this ganglion may be subservient.

XII. *On Dysphagia, illustrated by some Cases of Disease of the Oesophagus and Pharynx.* By S. O. HABERSHON, M.D.—The principal causes of dysphagia are stated to be as follows:

- "I. From the disease of the tonsils or palate.
- "II. From inflammation of the cellular tissue of the pharynx or œsophagus.
- "III. From disease of the laryngeal cartilages or epiglottis.
- "IV. From functional or spasmodic stricture of the œsophagus or pharynx, as in hysteria, hydrophobia, &c.
- "V. From paralysis of the muscles.
- "VI. From acute inflammation of the mucous membrane.
- "VII. From mechanical injury or poisons.
- "VIII. From structural obstruction to the œsophagus, as—1. constrictions; 2. ulcerations; 3. cancerous disease; and 4. aneurismal or other tumours."

Cases illustrative of most of these forms are brought forward; and among these, are several in which a communication was established between the œsophagus and air-passages, either by simple or cancerous ulceration.

XIII. *On the Use of Atropine in Iritis.* By JOHN F. FRANCE.—Mr. France advocates strongly the use of belladonna, or atropine, throughout every stage of iritis.

XIV. *Ophthalmic Cases.* By JOHN F. FRANCE.—These are two cases of artificial pupil brought to a successful termination.

XV. *On the Alkaline Emanations from Sewers and Cesspools.* By WILLIAM ODLING, M.B., F.C.S.—Dr. Odling has obtained evidence of the existence in the liquid contents of cesspools, of a base, approaching very closely in composition to that of ethylamine (C_2H_5N); but as yet, he is unable to say whether it "is or is not the toxic ingredient of sewer exhalations."

XVI. *On the Detection of Antimony for Medico-Legal Purposes.* By W. ODLING, M.B., F.C.S.—Dr. Odling's valuable researches show, that Reinsch's test for the detection of antimony, in which the metal is deposited on a copper plate, is the most delicate which we possess. The trial of "*Regina v. Palmer*" was the first criminal case on record in which this process was employed for the separation of the poison. The details of the process are given, by which it appears that one part of tartar emetic in 500,000 of dilute hydrochloric acid will produce a "decided and characteristic deposit" on a square inch of copper plate. The precipitation of other metals under the same circumstances is also considered; and it is shown that several others, more especially bismuth and tin, may be confounded with antimony. Consequently, the separated metal must be subjected to additional tests; and, as Dr. Odling observes, we require "some means for dissolving metallic antimony, having no solvent action upon metallic copper." None of the methods previously resorted to effected a complete and easy isolation of antimony, and hence Reinsch's test was seldom employed. The process, however, recommended by Dr. Odling leaves nothing to be desired.

XVII. *On the Gastric Juice as a Solvent of the Tissues of Living Animals.* By F. W. PAVY, M.D.—Dr. Pavy gives the results of experiments of the following nature:—Through a fistulous opening which he had established into the stomach of a dog, he introduced, during digestion, the hind legs of a living frog, and the ear of a living rabbit. In both instances the parts introduced underwent digestion after two or three hours. Similar experiments, in the case of the frog, have been often performed on the Continent. From these experiments Dr. Pavy argues, that the capability of resisting its own digestive powers, possessed by the walls of the stomach during life, and which ceases with death, is not due, as John Hunter thought, to its being endowed with “the living principle,” but to its epithelium and mucus being constantly reproduced as soon as digested.

XVIII. *On Poisoning by Strychnia, with Comments on the Medical Evidence given at the Trial of William Palmer.* By ALFRED S. TAYLOR, M.D., F.R.S.—This paper, which extends over 134 pages, and which, with an Appendix, has also appeared in a separate form, constitutes a most complete refutation of the personal attacks which were made upon the author during Palmer's trial, both by the counsel for the defence and by a portion of the public press; and also contains much valuable information concerning the deadly drug by which Cook was poisoned. It would be out of place here to enter into the details of the circumstantial evidence, which alone was sufficient to convict the prisoner; but we shall confine our attention, for the most part, to a few medico-legal questions of great importance, and to the investigation of which Palmer's crime may be said to have first directed us; and first—

1. What are the differences between tetanus produced by strychnia and that resulting from natural causes?

It will be recollected that it was urged for the defence, that the tetanic convulsions of which Cook died, might have been due to idiopathic tetanus, or have been of a traumatic character caused by sore-throat. It became, therefore, a matter of the highest importance to ascertain, what are the differences in the physiological phenomena of tetanus produced by strychnia and that resulting from natural causes. Fortunately such differences exist in a marked degree, so that, the secret murderer need no longer flatter himself that, by employing strychnia, he will escape detection. These differences are so important, that every practitioner should be acquainted with them; and we think we cannot do better than give the following extract in Dr. Taylor's own words:

“Tetanus, which implies a general spasm or cramp of all the muscles of the body, that are usually under the power of the will, may arise from—1. poison; 2. wounds (lacerations, severe bruises) (traumatic); 3. exposure to cold and wet (idiopathic).

“As to poisons—arsenic, antimony, and other irritant poisons, may occasionally produce tetanic spasms of the muscles; but then there are always other symptoms which precede or follow, of a totally different kind.

“Strychnia is the only poison (with the exception of brucia) which produces tetanus in a pure and unmixed form.

"In Cook's case there was no wound or personal injury; hence it was not case of what is called 'traumatic tetanus.'

"There was no exposure of the deceased to wet or cold.

"DIFFERENCES.

"*Idiopathic Tetanus from Exposure to Cold and Wet.*"

"1. Symptoms have no connexion with any liquid or solid swallowed.

"2. Symptoms commence slowly, and progress slowly; difficulty of swallowing; stiffness of jaws, of neck; after some time, the body, the legs, lastly the arms; hands not commonly affected.

"3. Opisthotonos, or body bent back in the form of a bow, resting on head and heels; does not come on until after many hours or days from the attack.

"4. Paroxysms, or fits of spasm, may be severe, and the person may die from exhaustion. Patient commonly recovers after some days or weeks.

"5. In idiopathic or traumatic tetanus there is no *intermission* in the symptoms, merely a remission of the paroxysms. The patient is always under the influence of the morbid cause, which remains until he dies or recovers.

"*Tetanus from Strychnia.*"

"1. Some solid or liquid taken within about two hours or less of commencement of symptoms.

"2. Symptoms commence suddenly with great violence. Nearly all the voluntary muscles of the body are simultaneously affected. Arms and hands spasmodically clenched at the same time as body and legs. Jaw not primarily affected, not always fixed.

"(N.B.—Cook was able to swallow and speak within ten minutes of his death.)

"3. Opisthotonos a very early symptom, in a few minutes commonly.

"4. When symptoms are once clearly established, they progress to death or recovery. They occupy only minutes. In from ten minutes to two hours after commencement the person dies or recovers, according to the severity of the paroxysms and strength of his constitution.

5. In tetanus from strychnia, if the dose should not be sufficient to prove fatal, the effects pass off; patient recovers; there is a complete intermission in the symptoms.

"(N.B.—This was a remarkable feature in Cook's case.)

"*Post mortem Appearances.*"

"There is nothing of a peculiar character in these appearances, whether the tetanus depend on disease or on strychnia."

Dr. Taylor proceeds to consider each of the above differences individually, with reference to the case of Cook, and whether the symptoms in his case might have arisen from some natural disease. He brings forward all the cases of poisoning by strychnia which have been communicated to him, or which he has been able to find recorded, (26 in number, including those of the appendix,) and shows that the symptoms during life, and the contracted, empty condition of the heart found after death, were quite consistent with strychnia poisoning in the human subject. It was argued in the defence, that the length

of time which elapsed before symptoms came on in Cook's case (1 or $1\frac{1}{4}$ hour), was inconsistent with strychnia poisoning. From experiments on sixty animals, Mr. Nunnely deposed on oath, that this interval varied "from two to thirty minutes," and was "more generally five or six." Dr. Taylor observes, that Mr. Nunnely's animals must have been singularly susceptible of the effects of strychnia; and he himself cites cases of animals in which the fatal tetanic symptoms did not supervene for five, eight, or eleven hours after the administration of strychnia; and he mentions one case of a man in whom the symptoms did not appear for two hours and three-quarters.

The next question to which we shall briefly allude, is,

2. Can a person die from strychnia and no trace of that poison be found by chemical analysis in the body? Every endeavour was made in the defence of Palmer to show that no man can die from poison, except poison be found in his body, and to throw mistrust upon symptoms and appearances as evidences of death from poison. Who under such circumstances would be safe? There are many vegetable poisons, such as the ordeal bean of Africa and laburnum seeds, for which chemistry as yet possesses no tests. There are poisons of such a nature, that

"While no chemical tests can reveal their presence in the body, their unlawful use may be surely and satisfactorily indicated by the suddenness, intensity, and peculiarity, as well as the fatal rapidity, of the symptoms which they produce."

Physiological and pathological phenomena, therefore, must not be rejected in cases of poisoning; and, as Dr. Taylor observes,

"Let it be remembered, that if the physician, as a pathologist or physiologist, may be deceived by symptoms, the chemist may be equally deceived by his tests. He may, and often has, pronounced poison to be present when it was not, and he has overlooked it when it was present."

It was argued by Sergeant Shee, that if ^{100th} of a grain of strychnia "had entered into the human frame at all, it could be, and must be, detected by tests which are unerring;" and Mr. Herapath avowed on oath, that if this poison had caused death, he could detect it up to the time that the body had become "completely decomposed;" in fact, when it was converted into a "dry powder"! Dr. Taylor proves, and proves most clearly, the utter groundlessness of such assertions. Cases are adduced (p. 356) of deaths from strychnia, in which that substance could not be detected after death. In one case, although two scruples had been taken, and the patient died in one hour and a-half, no strychnia could be found either in the stomach or blood. Another case is mentioned of a man who swallowed four grains of strychnia; one hour after, the stomach was emptied by the stomach-pump; the contents were examined by Dr. Stenhouse, of St. Bartholomew's Hospital, but "he did not detect any of the strychnia." Moreover, Dr. Taylor has had recourse to experiments on animals, but of six instances of animals poisoned by strychnia, and in which it was searched for after death, in two it could not be found in the contents

of the stomach, and in none was it found in the blood or tissues. These facts speak for themselves.

Dr. Taylor also considers the reasons for the non-detection of strychnia in the bodies of persons who have died from its effects; under the heads of—1, the quantity taken; 2, the time which has elapsed after taking the strychnia, until the symptoms commence; and 3, the careful preservation of the stomach and its contents. In Cook's case, the stomach, before being sent to Dr. Taylor for examination, had been "cut open and turned inside out," and "there were no contents."

3. What becomes of the strychnia in a case of poisoning in which it cannot be detected by chemical analysis?

Strychnia is not easily destroyed by putrefaction. This Dr. Taylor admits. The advocates of Palmer maintained that it was indestructible as the diamond, and therefore ought to have been detected; while at the same time they endeavoured to persuade the jury, that the whole *body* had been searched for it, and not the *stomach* only. Now experiments have shown that strychnia may be absorbed from the stomach with great rapidity. Dr. Macadam has detected its presence in the urine of animals nine minutes after it had been swallowed. At the same time there is reason to believe that strychnia "partially undergoes some change in the blood." Thus, Dr. Harley was unable to detect it in the blood of a dog, poisoned by the injection of $\frac{1}{2}$ th of a grain (of acetate) into its jugular vein. Here the poison must have undergone some change, for according to Mr. Herapath, there are tests which would have demonstrated the presence of $\frac{1}{100000}$ th part of a grain. Moreover, Drs. Harley and Macadam have ascertained that animals may be fed on the flesh of others poisoned by strychnia, and exhibit no tetanic symptoms. Here again it seems probable that the strychnia, on entering the system, undergoes some change, so that it no longer possesses a poisonous action on animals.

We repeat, in conclusion, that Dr. Taylor has fully exonerated himself from the "imputations of rashness, ignorance, and prejudice," which were attributed to him, and has justified on every point the evidence which he gave at the trial of William Palmer.

XIX. *Analysis of the Water of the Great Geyser, Iceland.* By ALFRED S. TAYLOR, M.D., F.R.S.—The peculiarity of this water consists in the large amount of silica which it contains (almost forty-eight grains in one imperial gallon). This is kept in a state of solution by carbonate of soda, and the high temperature of the water (190° F.).

XX. *Remarks on the Physiological Effects of Strychnia and the Woorali Poison.* By F. W. PAVY, M.D.—These two virulent poisons are produced by two plants, *strychnos nux vomica*, and *strychnos toxifera*, belonging to the same botanical genus. Dr. Pavy's experiments would show, that both produce death by arresting the respiration: strychnia, by inducing spasm of the respiratory muscles;

woorali poison, by inducing paralysis. He states, "under the influence of both, the heart remains perfectly free." These results, as regards strychnia, are opposed to those arrived at by Dr. Harley ('Lancet,' June 14th, 1856).

REVIEW XI.

Traité de l'Angine Glanduleuse, et Observations sur l'Action des Eaux Bonnes dans cette Affection; précédées des Considérations sur les Diathèses. Par NOEL GUENEAU DE MUSSY, Médecin de l'Hôpital de la Pitié et de l'Ecole Normale Supérieure, Professeur Agrégé à la Faculté de Médecine de Paris. pp. 269. 1857.

Treatise on Angina Glandulosa, with Observations on the Action of the Waters of Eaux Bonnes in the Complaint; preceded by Remarks on Diathetic Affections. By NOEL GUENEAU DE MUSSY, Professor, &c.

THE scrutinizing spirit of modern medicine which has brought to light so much of the morbid action, and products of different parts of the body, has of late years been very successful in making known the disorders of the laryngo-pharyngeal mucous membrane; which if not wholly unobserved by nosologists and the earlier writers, are at least unrecorded by them. Many important examples of disease in these parts have been carefully noted, and arranged in groups, according to the tissues affected, the diathesis, or the disease with which they are associated.

M. Chomel had for some years in his clinical lectures described certain affections of the throat, consisting chiefly of an enlargement of the glands of the laryngo-pharyngeal mucous membrane, common amongst speakers, readers, and singers, and associated, as he believed, with what he has termed a herpetic diathesis. But at the same time Dr. Green, of New York, as every one is aware, published his well-known work upon the diseases of the air-passages, including clergymen's sore-throat, &c. From that time the subject has received much attention in this country, and the topical medication recommended by Chomel and Green has had many advocates. Topical medication has extended to other diseases, such as whooping-cough; and other local agents besides those recommended by the above writers have been advocated in this country. Dr. de Mussy is, we believe, the first French physician who has devoted a separate treatise to the consideration of these maladies. His work discusses glandulous angina, but we have no doubt that under this title he has comprised examples of disease which would be more properly regarded as cases of chronic inflammation of the laryngo-pharyngeal mucous membrane; for the implication of the glandules, or, as Dr. Green less correctly regards them, of the follicles, is so slight, compared with the morbid condition of the membrane, in some cases, as by no means to justify the title. Membranous inflammation, with slight glandulous complication in its simple form, acknowledges the same causes, symptoms, and conduct

under treatment. We believe that it is only in a moderate proportion of cases of chronic throat ailments, signalized by frequent "hemming," dryness and tickling, hoarseness and loss of voice, that the glands of the mucous membrane are conspicuously or pre-eminently affected.

The title of *angine glanduleuse*, or glandular angina, first employed by Chomel, and adopted in the present work, while it would restrict the principal part of the local disease to the glands, is otherwise not free from objection. The word angina signifies suffocation, and is derived from the Greek word ἄγω, I strangle or hang, and by the Greek and Roman physicians it is applied to those diseases in which a tendency to suffocation is a marked feature. Now, it will not be asserted that in glandulous angina there is any material tendency that way. Glandular angina would be a very appropriate title—did we require a new one—for inflammation of the parotid and other salivary glands, and for enlargement of the lymphatic glands of the upper part of the neck, often dependent upon the absorption of poisonous secretions in the fauces, and which, yet have ourselves known to cause death by suffocation.

Chomel's doctrine of the almost invariable dependence of glandulous angina upon the herpetic diathesis, has been fully adopted by the author of the work before us. The introduction is devoted to the discussion of diatheses in general, and of the herpetic diathesis in particular. According to our author, most acute diseases are the results of accidental transient causes, while chronic maladies originate in an inherent disposition of the organism itself, or from the long-continued operation of external influences. The name of diathesis is given to those pathological conditions, to those morbid constitutional states which reveal themselves by multiplied, successive, or simultaneous manifestations.

The diatheses play an important part in the production of chronic diseases.

According to Dr. de Mussy, the diagnosis of diathetical affections, which do not present well-defined topical characters appreciable to the senses, is to be made out by reference to their duration. If diseases last longer than is usual with them, they are to be regarded as diathetical. With him unusual chronicity is almost always held to be pathognomonic of diathesis. This may be generally true, yet disease may be unusually prolonged by the operation of unknown external causes, or certain obstacles to cure in the body itself, altogether independent of diathesis.

Dr. de Mussy makes some judicious observations on the treatment of diathetical diseases. He says—

"When a person is under the influence of a diathetical affection, to devote exclusively to the local disease the whole of our therapeutic efforts, is in many cases fruitless, and sometimes a source of danger, if the manifestation which it is desired to repress does not compromise life, and if the diathetical action may develop itself in another organ, the functions of which cannot be disturbed without peril." (p. 16.)

He maintains that the physician should abstain from all topical medication when the disease is of long standing, when it entails little or no inconvenience, when there is reason to fear the substitution of graver disorders, and when the patient is old, has little elasticity, or few resources.

The author recognises two important causes in the production of diathetical manifestations. The first is debility of the organism; the second is a local irritation. In this matter he only reiterates the opinion of the medical world.

The author dwells upon the fact, well known to practical physicians, that affections of the mucous membranes frequently alternate with diseases of the skin.

"We often see herpetic affections, pulmonary catarrhs, and obstinate diarrhoea succeed and replace each other in so remarkable a manner, that it is difficult not to admit a connexion between these different manifestations." (p. 27.)

Again :

"When we see this balancing of morbid conditions, occupying different seats, when the internal malady which has replaced the external affection exceeds in its duration the ordinary limits of an accidental disease, we can admit, without carrying the results of inductive reasoning too far, that behind these different manifestations there is concealed or disguised, to speak in the picturesque language of ancient medicine, one morbid cause, one pathological condition of the organism—in a word, a diathesis—the origin and substratum of these different disorders." (p. 27.)

The author enumerates the causes of the herpetic diathesis in the following paragraph:

"After hereditary taint, errors of regimen, residence in an impure atmosphere, an exciting diet, or the habitual use of certain unwholesome articles of food, exciting or prolonged emotions of the mind, long-continued watchings, neglect of hygienic rules suitable for the maintenance of the functions of the skin, direct chemical or mechanical irritations applied to this organ, excitement of the functions by heat of the atmosphere, all those conditions which can weaken the vital energy or disturb the harmony of the functions, such as puberty or the cessation of menstruation, pregnancy, fatigue of body and mind,—are the causes which appear to intervene the most frequently in the development of herpetic manifestations." (p. 33.)

According to Dr. de Mussy, herpetic manifestations once developed have a great tendency to persist and reproduce themselves; and if the tendency be strongly pronounced, it is not unfrequently observed that their disappearance, either spontaneous or procured by topical applications, is succeeded by affections of the internal organs. We see, he adds, glandulous angina following herpetic affections, which it seems to replace; "the skin is a blood instrument," he informs us, "a vast vascular network, an immense secreting or absorbing surface." (p. 38.) No one, we conceive, will be disposed to doubt the correctness of Dr. de Mussy's views respecting the causes of the so-called herpetic manifestations. His views on diathesis, and on the tendency which suppressed or repelled skin diseases have to induce disturbance of the

internal organs, would be extremely useful had they not long since been inculcated. The truisms which he communicates—elegantly, we admit—would not be less appropriate, we are disposed to think, in the discussion of almost every other disease to which the human body is subject. We are inclined to admit no closer connexion between herpetic affections and the so-called glandular sore-throat, than exists between this affection and many other external and internal diseases. In support of this opinion we would simply state that, during an inquiry made recently at one of the hospitals in London, we have met with many examples of the disease in persons perfectly free from all disease of the skin, and that out of numerous examples, in only one or two was there the least manifestation of a herpetic character. On the other hand, we observed that persons suffering from pityriasis, eczema, and acne, to a striking extent, and therefore selected for examination, presented the uvula, the tonsils, and pharynx in a state of the most perfect health.

That herpetic eruptions may appear upon the soft parts in the interior of the mouth, we readily admit. We have occasionally seen vesicles on those parts. Within the last few days we have seen a very fine vesicle on the uvula of a great smoker of tobacco. But this indicates no peculiar attraction on the part of the herpetic diathesis for the interior of the mouth. How many diseases are found in that locality? do we not find syphilis, the exanthemata, and many skin affections there?

It was only yesterday we saw psoriasis well developed upon the tongue of an elderly lady, whose entire trunk and arms are covered with this squamous disease. Erysipelas is known to have its manifestation in the throat; and an enormous carbuncle on the nape of the neck, we have lately seen in combination with nearly all the symptoms which Dr. de Mussy would hold to mark the course of glandulous angina.

Following Dr. de Mussy, the characteristic of glandulous angina, as the title would perhaps indicate, is a morbid development of the glandules of the velum palati, uvula, of the pharynx, and larynx. The author informs us that the structures generally described as follicles, are in reality glands arranged in clusters, the only parts in which follicles are found being the posterior and lateral parts of the tongue. Into these follicles, according to our author, the excretory ducts of the glands open.

“Upon the posterior portion of the palatine vault, and upon the inferior aspect of the velum palati, the glandules in clusters form many continuous beds. On a level with the little depressions described by Albinus, and which, when they exist, are found in the vicinity of the palato-maxillary articulation, these glands, instead of being gathered together, separate and soon disappear. They show in great force in that part of the pharynx which is situated between the atlas and axis behind, the basilar process above, the superior face of the velum palati inferiorly, the posterior opening of the nasal fossæ in front, a region which has been described by M. Sappey under the name of posterior cavity of the nasal fossæ. They are found in great numbers at the superior part of the pharynx, and arrange themselves in groups around the mouths of

the Eustachian tubes. They become more rare as we approach the œsophagus, Some of these glandules are found lodged in the little holes of the fibro-cartilage of the epiglottis. . . . They are very numerous in the larynx, more particularly under the mucous membrane of the ventricles." (p. 14.)

We have recently examined these parts, and have seen no reason to doubt the accuracy of the descriptions of Dr. de Mussy.

Amongst the circumstances which favour the development of glandulous angina, Dr. de Mussy ranks sex. Men are more subject than women to this disease: sixty-six men suffered, while only twelve women were affected. This great preponderance of the male sex does not correspond with our experience. Of twenty-two patients examined only during the last ten days, we found that thirteen were females and only nine were males. The influence of profession has been dwelt upon by some writers; and though the point is noticed by Dr. de Mussy, we do not perceive that he has added any facts to our stock of knowledge. Dr. Green had remarked that clergymen were special sufferers, and M. Chomel has indicated that barristers, readers, and singers, are frequently affected.

Dr. de Mussy is of opinion that of all the occasional causes of glandulous angina, the practice of smoking tobacco is one of the most indisputable. It produces an irritation of the mucous membrane of the glandules. He believes that, in order to effect a cure, it is necessary to renounce the practice. The practice of snuff-taking he likewise believes to be injurious. One of his most remarkable cases occurred in an old man who took snuff to an immoderate extent. Mr. Solly no doubt can produce similar testimony. There can be no question whatever of the tendency of tobacco smoke, or of tobacco in the shape of snuff, to create irritation of the mucous membrane and of the glands situated beneath it. Yet we are strongly inclined to believe that the evils they actually produce are greatly over-rated. A man suffering from material irritation of the lining membrane of the nasal fossæ and of the pharynx, is not likely to persist long in the immoderate use of tobacco. At all events, we see hundreds who daily smoke and snuff, and of these only a very small proportion suffer from glandulous or any other angina. We would say in passing, that while we deprecate the practice of smoking, we cannot admire that lax science which makes untenable assertions, even in furtherance of a good cause. We know many persons afflicted with phthisis—and comparatively few so situated are altogether free from some lesion of the laryngo-pharyngeal membrane—who not only smoke tobacco, but derive benefit from its use. Several of our patients smoke stramonium, and are soothed by it. Dr. de Mussy takes no notice of many acknowledged irritating agents. He is all but silent on the injury caused by excess in the use of spirituous liquors. The peculiar action of some medicines on the membrane under consideration is omitted. Croton oil and belladonna, and, in many persons at least, the iodide of potassium, exercise a most irritating influence; yet when treating of the causes of the disease, these agents are unnoticed. We have known a state of intense irritation

produced in the laryngo-pharyngeal membrane by a strong enema of extract of belladonna, and the same state of things has occurred, together with severe coryza and swelling of the eyelids, from a moderate use of iodide of potassium. It would be interesting to know the result of the almost universal and hourly practice of chewing tobacco prevalent amongst British sailors. No one who has been in an English sea-port will accuse them of aphonia.

The disease which Dr. de Mussy describes he acknowledges to be essentially chronic, yet it sometimes assumes an acute character. In the acute form the progress is quicker, and it occurs in attacks marked by long intermissions. Febrile symptoms are associated with the local disorder, fits of coughing causing a sense of suffocation and oppression at the sternum, and tickling at the fauces annoy the patient, who is in the frequent habit of making short and violent expulsive efforts from the larynx, producing a sound like that of the word "hem." This so-called English verb is of very frequent occurrence in the work before us, and is perhaps more familiar in the mouth of Dr. de Mussy than in that of any Englishman with whom we have met. By the way, he labours under a singular impression in respect to an allied word "hawking," which he characterizes as "picturesque."

Some examples of the acute form of the disease are given, but they contain nothing of material interest, while they occupy considerable space.

The author now proceeds to the consideration of the main subject—the symptoms and progress of glandulous angina. His descriptions are good, and we shall therefore give a few extracts.

Precursory phenomena.—Glandulous angina, from its first appearance, seems sometimes to announce itself by frequent attacks of croup-like cough, coinciding with herpetic manifestations. Later, there is a disposition to transient hoarseness, which is repeated many times each year, chiefly in the variable seasons. This alteration of the voice, as I have already said, is often preceded by repeated coryzas, which leave in the posterior part of the nasal fosse a habit of excessive secretion, of a thick yellow or greenish colour, which the patient is compelled to bring from the throat into the mouth." (p. 46.)

First Stage.—

"In general, the malady manifests itself after puberty. Sometimes its invasion is sudden; it occurs after immoderate exercise of the voice, or after sudden cooling. The patient experiences from time to time a sensation of embarrassment, of pricking, of tickling, of smarting in the throat, of closure of the larynx. . . . Some patients complain at times of a little pain in swallowing. . . . The expectoration is scanty; in the morning the patient from time to time, especially after efforts of 'hemming' or coughing, emits some viscous masses, sometimes opaque, more frequently transparent or slightly opaline, grey when the patient has inspired the smoke of fire-places or of artificial lights, strewn with white points very like diluted starch, as has been remarked by M. Chomel." (p. 47.)

We have found expectoration of this character to be composed of large mucous cells with dark granules.

Second Stage.—

"The voice is habitually harsh, rough, hoarse, often lower than its natural

pitch. With some, aphonia becomes complete and permanent. The tickling in the larynx grows more continuous and more uncomfortable. With some patients, instead of a sensation of tickling, there is a snorting, a pricking, a painful sense of dryness, a burning, which seems sometimes to descend the entire length of the œsophagus, and to reach to the cardia. The patients are seized all at once with fits of cough of extreme violence, resembling the cough of pertussis, accompanied with a sense of anguish and suffocation; their features become livid, their eyes are bloodshot; then the sputa, which I have described, suddenly escape, and are projected to a distance of many yards, as if discharged from a shooting-tube, and the expulsion of which terminates the crisis."

Dr. de Mussy devotes a chapter to the consideration of the lesions and pathological conditions of the parts affected. The lesions are carefully described, but we do not perceive much that is new. The account of the pathological anatomy is given from the observation of the parts taken from only two patients, one of whom died of phthisis. Like Dr. Green, Dr. de Mussy has met with calcareous concretions in the tonsils. These sometimes are found, according to Dr. Cox of New York, sufficiently large to interpose a difficulty in excising the enlarged tonsil. Dr. Robin has proved, by the aid of the microscope, that these concretions originate in small crystals found in the glandules. The uvula, Dr. de Mussy states, is elongated in a great many cases, and he refers this alteration to infiltration of the sub-mucous tissue. He correctly describes the dilated bloodvessels, which exhibit their flexuous course upon its anterior aspect. He notices the fact, that the uvula, though double its usual length, may retain its full contractility, though he has generally observed that the muscular power of the part is much reduced. Low inflammatory action, and the presence of œdema, readily account for the loss of power.

The enlargement is not always due to œdema, it is referrible in many cases to actual hypertrophy. The author has seen much advantage arise from the amputation of this enlarged part, the proceeding having caused the vomitings and sense of suffocation to cease. There can be no doubt that this operation is calculated to be of great use, when the uvula is so long as to lie upon the tongue, or to reach the glottis. We have lately examined the fauces of two patients, both afflicted with phthisis, in whom amputation of the uvula had been performed, and whose fauces had become perfectly healthy. The operation in one case had been performed by Dr. Simpson, of Edinburgh, and the other had been undergone by the advice of Dr. Stokes, of Dublin. The uvula frequently presents two kinds of elevation—one smaller, such as are found upon the vault of the palate; the other larger, the same as are presented by the large glandules in the pharynx. They often present at their summit a yellow colour, which Dr. de Mussy refers for the most part to the presence of pus. We have ourselves found plates of cholesterin and epithelial cells. The pharynx presents large elevations, sometimes the size of a lentil; these, according to Dr. de Mussy, are enlarged glandules. He has seldom seen ulceration of the pharynx, and we believe it is of much rarer occurrence than Dr. Green and others suppose. Neither has he found tubercular deposit i

the pharynx, although, like many other observers, he has seen it in the larynx.

Dr. de Mussy finds the epiglottis frequently the seat of ulceration, the favourite points being its borders. Examined under the microscope, the tubes of the glands were found larger than natural. The layer of epithelium lining their interior was a little thicker than ordinary. The characteristic of the morbid condition of the glands was one of simple hypertrophy. In some of the larger glands were found little calculi, chiefly composed of carbonate of lime.

In Chapter X. we are informed that the most frequent complications of glandulous angina are coryza, tracheo-bronchitis, and tuberculous disease. The affection very often extends beyond the larynx, and invades the trachea and bronchi. Dr. de Mussy correctly remarks, that in a large proportion of phthisical patients the pharyngeal glands are abnormally developed. It has been observed at the Hospital for Consumption and Diseases of the Chest at Brompton, that a large proportion of the patients suffer from aphonia more or less complete, and that the early supervention of this complication argues badly for the result. Of 116 patients, mostly phthisical, whom we examined in one day lately, 10 persons, or 8.6 per cent. had aphonia. The passage of acrid sputa over the surface of the larynx is doubtless a frequent cause of the laryngeal complication; but this is not always the cause, for we find it when there is little or no expectoration. It seems frequently to depend upon the deposition of tubercle in the mucous membrane, or the propagation of irritation along the bronchial tubes. Dr. de Mussy has seldom seen the œsophagus implicated, and he contests the view of Dr. Green, that when implicated the disease may become cancerous.

On the treatment of the disease, Dr. de Mussy is very expansive. When on the subject of hygienic rules, he enforces the importance of pure air and reparative regimen, and freedom as far as possible from moral emotions. The patient, he says, equally dreads a cold, humid atmosphere, and one that is very dry. Currents of air are to be shunned, and he should avoid walking contrary to the direction of the wind. The food and drink should not be exciting. The voice is not to be much exercised. These rules will meet with the approbation of the profession, but Dr. de Mussy has omitted all mention of clothing. Clothing sufficient to guard against external cold, or the undue lowering of the temperature of the body, is of the utmost importance, and it is essential to attend to this point by night as well as by day. We have known examples of disease of the larynx to depend upon the accidental sleeping without the usual night-cap, ay, even upon such a trifling reduction in clothing as is involved by replacing a larger shirt-collar by a smaller one.

While upon the subject of hygienic rules, we would suggest that the practice of having ventilators in our rooms and public conveyances, placed on a level with our ears and throats, is very favourable to the invasion of this and other allied diseases.

*True to the doctrine that glandulous angina depends upon the herpetic diathesis, Dr. de Mussy, in treating the disease, relies chiefly

upon the exhibition of sulphur; and here he closely follows his teacher, M. Chomel. The natural waters are the form most depended upon, and those of Eaux Bonnes, in the Pyrenees, are greatly preferred. He says:

"For a long time sulphurous waters have been employed in this disease, confounded under the name of bronchitis or laryngitis, in the class of those numerous catarrhal affections in which the sulphurous water-treatment is applied with so much success. For my own part (he says), I have often proved its efficacy. It appears to me to answer the various indications of the disease under discussion." (p. 129.)

The immediate results of the treatment are these:

"It appears that the nervous action becomes more powerful, nutrition and assimilation are more active; all the functions are performed with more energy and harmony; the patient gives expression to these combined results by saying he has more life."

His appetite increases, his muscles acquire more vigour, he experiences a general excitement which is reflected upon the intellectual faculties. The functions of the skin are stimulated, in general the respiration is more easy and abundant. The Eaux Bonnes are administered internally, and applied externally in the form of baths. The duration of the treatment is divided into seasons of between twenty and thirty days. One season will frequently suffice, but in old standing cases two seasons are often necessary.

It has been long acknowledged by sagacious observers, that not a little of the benefit which the sick derive from a residence at watering-places is due to the change given to the mind, and to the operation of a pure atmosphere. The atmosphere and climate enjoyed by the frequenters of the Eaux Bonnes are of the most salubrious character. Dr. de Mussy says:

"An incontestible fact in favour of Eaux Bonnes is the excellence of the atmospheric conditions. The air has that purity which we seek in the mountains, without being exposed to the violent agitations which are elsewhere experienced. At Eaux Bonnes the atmosphere is habitually calm, the girdle of mountains which surrounds this valley, and the slope on all sides, oppose an almost insurmountable barrier to the winds, or do not permit their arrival until they have lost all their impetuosity." (p. 142.)

The author has a few words, and only a few, to say on the use of other internal remedies. He has very little faith in mercurial preparations, and finds in Dr. Green a faithfulness to "the traditions of Anglo-Saxon medicines," because that physician combines the use of mercurial preparations with topical medication. He has had little experience in the use of the preparations of iodine. For our own part we have seldom seen iodine of much use in such diseases: applied locally it has produced great irritation; and even internally administered, as we before stated, it has caused irritative action in the neighbouring parts, such as the nose and the conjunctivæ. Some physicians have reported advantage from inhalation of iodine in pulmonary affections, associated with disease of the larynx. The consideration of internal remedies concludes with a few words on the employment of

balsams and narcotics. The former are recommended after the more acute symptoms are appeased, and the latter, held to be necessary in the acute forms of the malady, are very unfit auxiliaries in the chronic state when the patient is of an irritable constitution. Of the latter class of remedies, the most important are opium, hyoscyamus, lactucarium, cherry laurel water. Belladonna is contra-indicated.

Dr. de Mussy believes that the sulphurous treatment alone will in many cases succeed in the cure of the disease; but he acknowledges that examples of glandulous angina do occur which resist this treatment. He has then recourse to topical medication, which he holds to be very valuable.

The topical medication is discussed under three heads: dry insufflations, liquid applications, and gaseous inhalations. The dry powders which have been employed in France are sugar, sub-nitrate of bismuth, acetate of lead, alum, sulphates of zinc and copper, nitrate of silver, and calomel. Dr. de Mussy makes use of dry powders less frequently than of liquid applications. Of the latter agents, nitrate of silver is, as in this country, the most esteemed, and in applying it the common laryngeal probang is employed. This he claims as the invention of M. Trousseau. The author communicates little that is novel on this point, or on the use of moist inhalations. M. Trousseau has recommended the employment of cigars made of paper, saturated with a solution of arsenic. Dr. de Mussy is of opinion that the laryngeal probang very seldom penetrates the larynx, and shares the scepticism of some surgeons in this country. We would simply remark here that we have made the experiment upon the dead body, and after having, as we believed, easily introduced an instrument into the larynx, have cut down upon it, and found it there. Dr. de Mussy is not aware that the topical use of oils, glycerin, tannin, and other agents, has been proposed and adopted in this country. We happen to know that glycerin is employed with the most soothing, if not absolutely curative, results in some affections of the glottis and larynx. It is applied to the glottis by means of a large camel-hair pencil, or introduced into the larynx with the probang. The former method is easily accomplished, and scarcely ever fails to remove the sense of tickling and dryness, and to improve the voice from the moment it is practised. Though the author does not refer to the subject, we would mention that the glottis may be very advantageously brought into view with the aid of Avery's glottis speculum.

A few words on the use of vesicatories and croton-oil frictions, and recommendatory of the amputation of the uvula when elongated, close the treatment of the disease.

In conclusion, we would here express our conviction that the present work reflects credit on the author. The descriptions of the diseases and of the morbid appearances are excellent and truthful; the arrangement of the work is exact, and the language is ever remarkable for its elegance. The subject has been discussed in all its relations. The morbid appearances are well and faithfully depicted. The microscopical anatomy, as far as we know, is to be relied upon; it corre-

sponds with our own observations; but we regret that the author's opportunities for research have been so limited. The connexion between glandulous angina and the herpetic diathesis we believe to be over-stated; and we know that the sulphurous treatment, at least in this country, is less essential than the author believes. There are grave omissions in the work—the necessity for regulating the liver and bowels is scarcely glanced at; the employment of quinine and the mineral acids is passed over in silence; and though the administration of alkalines, combined with vegetable tonics or the decoction of *ulmus fulva*, is so beneficial in some forms of skin disease he would designate herpetic, and in the lithic-acid diathesis, these important agents are only once referred to, and that incidentally in a note; cod-liver oil, dry cupping, and leeches, have not one word in their favour.

Dr. de Mussy is doubtless an accomplished gentleman and a pains-taking physician, and we think he will yet improve his work. Let him add a little more pathological anatomy and microscopical observation, and withdraw some of the many not very interesting cases which so unnecessarily enlarge the volume. When he has made a further acquaintance with the statistics of the disease, he will find, or we are much mistaken, that it is less frequently associated with herpetism, less rarely a primary local disease, and more dependent upon tuberculosis or a scrofulous diathesis than his work would lead his readers to believe.

REVIEW XII.

1. *Chimie appliquée à la Physiologie et à la Thérapeutique*. Par M. le Docteur MIALHE, Pharmacien de l'Empereur.—Paris, 1856. 8vo, pp. 703.
Chemistry applied to Physiology and Therapeutics. By Dr. MIALHE.
2. *A Treatise on Therapeutics and Pharmacology, or Materia Medica*. By GEORGE B. WOOD, M.D., President of the College of Physicians of Philadelphia, &c. &c. 2 vols. 8vo, pp. 1741.

THE work of M. Mialhe, although under the new title of '*Chimie appliquée à la Physiologie à la Thérapeutique*,' is in reality the second edition of a treatise published by the same author in 1845, and named, '*Traité de l'Art de Formuler, ou Notions de Pharmacologie appliquée à la Médecine*.' The present volume, however, is very considerably enlarged, the additions being made chiefly to that part which pertains to physiological chemistry. We shall endeavour to present to our readers a short account of the contents of the work, and dwell a little upon the points we deem either useful or possessed of such novelty or interest as to call for particular comment.

About fifteen pages are first devoted to general considerations, more especially as to the influence of the vital force upon those chemical laws to which inorganic bodies are subject. "Organized bodies," says our author, "either animal or vegetable, present, in the same way as inorganic substances, the physical phenomena of electricity, heat, light,

weight, hygrometry, endosmose; and the chemical phenomena of affinity, attraction, of composition and decomposition. But whilst inorganic substances implicitly obey the general laws of nature, organised bodies exert a constant reaction against their destructive influence, in virtue of a constitution which is peculiar to them, and which, endowed with solids, liquids, tissues, organs, and systems, give rise to functions which in their aggregate constitute the incomprehensible phenomenon named life.

Life, then, is the continued and prolonged struggle of the laws of individual against those of universal nature; and the amount of vitality is proportioned to the degree of superiority of the first over the second. Without attempting to investigate the phenomena which accompany the higher functions of animal life—phenomena which as yet have baffled all scientific attempts, and remain an apparently impenetrable mystery—our author confines his researches to those immediately dependent on the material conditions of existence, or those of organic life only, and remarks, in the words of M. Dumas, “To others belong the care and privilege of developing the noble faculties of the human intelligence; our more humble task must confine itself to the field of the physical phenomena of life.”

The first chapter is devoted to the phenomena of oxidation and nutrition, and is divided into many sections. When treating of the influence of oxygen in the transformation of the tissues, much stress is laid upon the power gained by the extended surfaces arising from the extreme porosity of the tissues, and some good examples brought forward in illustration; among others, an experiment by M. Dumas, showing that sulphuretted hydrogen is very easily oxidated and transformed into sulphuric acid, simply by the influence of moist clothes or sheets.

Another interesting experiment of M. Millon is quoted, showing the power that hydrocyanic or prussic acid possesses of arresting the oxidation of certain chemical substances. For example, when a few drops of this acid are added to a mixture of iodic and oxalic acids, the decomposition of the latter, which usually rapidly ensues, is entirely arrested; and our author supposes that a similar explanation may account for the terrific and rapidly-poisonous effects which ensue when this acid is brought in contact with the living body. The application of the results obtained by M. Millon to the explanation of the toxicological effects of prussic acid, is by no means novel. We have for many years been accustomed to compare the two phenomena when explaining to our class the physiological action of this drug. In this section are given most of the phenomena of change which different substances undergo in passing through the animal economy; but these being met with in many other chemical and therapeutical works, need not detain us.

After devoting a few pages to the consideration of the ferments met with in the vegetable and animal kingdoms, in which we find little or nothing having any pretensions to novelty, the phenomena of the digestion and absorption of those alimentary substances which are indispensable to nutrition, is discussed, under the following heads:

1. Vegetable matters, or hydrocarbons; as sugar and starch.
2. Nitrogenized, or albuminous substances; as albumen, casein,* gelatin, and gluten.
3. Fatty bodies; as fats and oils.

The views of M. Mialhe upon the digestion and assimilation of the first class of these bodies are somewhat peculiar; and as they bear particularly upon the study of the pathology of certain forms of disease, and would, if adopted, greatly influence the treatment, we shall not scruple to devote some little time to their consideration. Our author, in the first place, states that crystallizable, or rather cane sugar, when injected into the veins of an animal, is thrown out in the urine without having experienced any change in its passage through the system; whereas if glucose, or starch sugar, is substituted for cane sugar, it is not eliminated by the kidneys, nor, after a short time, is it found in the blood;—facts which show that cane sugar is not immediately assimilable, but that it is necessary that a conversion into glucose should first ensue. This conversion takes place in the digestive organs, by means of the acids and ferments which it there meets with, and may be readily imitated out of the body by the use of weak acids or certain nitrogenized matters. Mialhe thence concludes, that glucose and the allied sugars alone are susceptible of being used in the secondary assimilation, and that cane sugar, if it enter the blood as such, acts only as a foreign substance, and is destined for elimination. When we speak of glucose and the allied sugars, those only are intended to be understood which are at once decomposed by caustic alkalies and alkaline earths into the coloured acids, and which possess the power of reducing copper to the state of the suboxide when the solutions of the protosalts of this metal—such as those known by the names of Barreswill's,* Trommer's—are employed. This group includes not only glucose, but also the sugars from acid fruits, diabetic sugar, &c. Amylaceous matters are next shown to be converted into glucose in the digestive passages, and some pages are occupied in discussing the causes of this change, and the author endeavours to establish the correctness of his own discovery, published in 1845, namely, that this change is effected by aid of the saliva. Our space, however, will not permit us to enter into the merits of this question, as we are about to discuss more particularly another section of the chapter, relating to the destruction of sugar in the animal economy.

With regard to the source or origin of sugar in the system, M. Mialhe appears to disregard altogether the researches of Bernard, who has demonstrated that the liver is the chief sugar-producing organ in the body, and that it is efficient to generate all that is necessary, even from food entirely deficient in saccharine or amylaceous matters, and to agree with those who have endeavoured, unsuccessfully we believe, to show that the sugar found in the liver of an animal who has been fed for a long time on an exclusively meat diet, is derived from the traces of this principle said to be contained in flesh and eggs. The arguments in favour of Bernard's views, supported by experiments apparently

incontrovertible, have been placed before our readers so fully in our January number, as not to need repetition here.

Whatever be the source of sugar, whether it be derived from the transformation of amylaceous matters by the action which takes place in the alimentary canal, or whether it be secreted by the liver, the question next arises, Why do we not meet with it in the different excretions, in the healthy condition of the economy? Why does it disappear so rapidly from the blood? Is it destroyed, to serve other uses in the system? Undoubtedly, in the healthy state at least, it is decomposed and converted into some other compound or compounds, and eliminated in these new forms by one or more of the excreting channels; it becomes, however, a question of great interest, as bearing directly both on the pathology and treatment of diabetes, to determine whether diseased states occasionally occur in which this change does not ensue; and again, whether such a condition exists in cases where the phenomena of glucosuria are exhibited.

We shall find that Mialhe is a strong supporter, perhaps the originator, of this view, and endeavours to support it by chemical analogies and some very few clinical facts; we must, however, here express our opinion of M. Mialhe, derived from the perusal of his work,—he is evidently but partially acquainted with physiology, and still less with clinical medicine, and he often gives very undue weight to certain relations which he thinks to exist between chemical changes occurring out of the body, and those which take place under the influence of the more complicated and less understood chemistry of vitality. But to return to our subject; it is well known that under the influence of alkalis in their free state or in that of carbonates, glucose is decomposed by heat, and resolved into dark-coloured compounds, consisting of melassic, ulmic acid, &c.; but it is not so altered when alkaline phosphates, even those having an alkaline reaction, are made use of. Again, this form of sugar possesses deoxidizing powers, and is capable of decomposing certain metallic salts, especially those of copper, reducing them to the condition of suboxide, when an alkali is present; M. Mialhe, taking these chemical facts, endeavours to compare them with the phenomena which ensue in the interior of the organism: he states, for example, that some metallic salts, as the ferriocyanide or red cyanide of potassium, injected into the veins, passes into the urine in the state of the ordinary yellow salt or the ferrocyanide; that in cases of poisoning by the protosalts of copper, the metal is found in the tissues in the form of suboxide, and that corrosive sublimate is converted into calomel, and these changes are ascribed to the presence of glucose in the blood, and said to be aided by the administration of this substance; it is also shown that glucose is not able to absorb oxygen from the air, unless previously transformed into other compounds, and that this necessary change takes place from the presence of alkalis or their carbonates.

M. Mialhe asserts, that in the normal state there exist considerable amounts of alkaline carbonates in the blood, and therefore the glucose finds in that fluid all the conditions necessary for its oxygenation and

transformation. The following he supposes to be the order in which the phenomena ensue: the sugar enters the blood, decomposes the alkaline carbonates, forms with the bases new salts, *glucosates*, setting free the carbonic acid; the salts thus formed having but slight stability, are rapidly transformed into glucic, ulmic, and formic acids, or rather salts of these acids, which absorb oxygen, undergo a species of combustion, and give rise to water and carbonic acid as ultimate products. According to this view, the destruction of glucose is a phenomenon closely allied to combustion, and it is by means of the alkalies of the blood that this change is effected, and sugar is able to serve as a respiratory agent or element. From this point M. Mialhe passes at once to the consideration of diabetes, for if, says he, the glucose from any cause ceases to undergo the above-named changes, the blood must necessarily become charged with this principle, which, acting as a foreign body, is afterwards eliminated by different glands, more especially the kidneys, giving rise to the secretion of large quantities of saccharine urine, thus constituting the disease known by the names of glucosuria or diabetes.

After examining the various hypotheses which had been proposed to explain the nature of this obscure affection, our author was led to think that it was to be sought for by investigating the phenomena attending the destruction of the sugar in the system; and as the result of his search, came to the conclusion that the true cause is a *deficiency of alkali* in the blood; for, he remarks, the digestion of amylaceous matters takes place in the same way both in the diabetic subject and the healthy individual, in both there is the same transformation of starch into glucose under the influence of the saliva and pancreatic juice; but in the latter, the glucose is further altered and decomposed by the alkalies normally present in the blood, whilst in the diabetic patient there is an absence of this destruction of glucose from a want of alkalinity; this deficiency of alkali is ascribed to several causes, as the abuse of acid drinks, a too exclusively nitrogenized diet, and suppressed perspiration.

M. Mialhe certainly brings forward many arguments and illustrations which appear at first to be highly favourable to his views: for example, he instances that in the blood, when in a healthy state, glucose cannot exist or remain undecomposed, as it possesses alkalinity; whereas in the sap of vegetables, which is either neutral or acid, sugar is normally present; that as a plant watered with a slightly alkaline solution ceases to produce sugar, or rather destroys it as soon as it is formed, so in the animal economy, if by accidental or other circumstances the acid secretion of the skin becomes arrested, or if by the daily taking of acid substances, or substances easily convertible into acids, the blood loses its alkaline qualities, being saturated by the acids, it approaches in character to the condition of sap, and then the existence of sugar in the blood becomes possible, and the diabetic condition is induced. Our author states that the only important objection which has been opposed to his views, is the fact that the blood of diabetic patients is never either neutral or acid, but always preserves

its alkaline reaction. He answers this by stating, that it is difficult to tell the amount of alkalinity of the blood, and again, that part of the alkaline reaction of this fluid is derived from the presence of alkaline phosphates which possess no power of decomposing glucose; he is therefore inclined to consider that the carbonates are deficient or absent, the phosphates remaining intact, thus preventing the fluid from exhibiting any but an alkaline reaction. M. Mialhe, however, allows that other circumstances besides the insufficiency of alkaline carbonates, may prevent the combustion of sugar, and induce at least temporary glucosuria, and hence is inclined to agree with M. Reynoso, as to the influence of a deficient performance of the respiratory function.

In the treatment of diabetes, M. Mialhe strictly acts up to the indications dictated by his hypothesis, and proposes, above all, the use of alkaline remedies; under the influence of these agents, he states that the sugar in the urine quickly diminishes, and even disappears altogether. The alkalies prescribed are lime water, magnesia, Vichy waters, and the bicarbonate of soda; at the same time he makes use of alkaline and vapour baths, flannel, friction, exercise, and sometimes sudorifics; he also orders a diet restricted at first as to the amylaceous principles, but these are gradually increased in amount according as the system is able properly to assimilate them; he reprobates the exclusive use of an animal diet, as generating an undue proportion of acids in the system. One case of a diabetic patient, who was treated on M. Mialhe's plan, is related, and as it exhibits a somewhat remarkable disappearance of sugar from the urine, we will present an abstract of it to our readers.

M. Garofolini, an Italian professor of music, had resided in Paris for several years; he formerly enjoyed excellent health, but latterly had been suffering from pain in the renal regions and from colic, causing frequent desire to pass urine and likewise some tenesmus. He occasionally took Vichy water, which rapidly removed the symptoms, and within a month his health appeared to be re-established. He remained well for two years; but after that time, during the intense heat of the summer, he was tormented with great thirst, to allay which he drank a very large quantity of acid drinks, and partook of acid fruits, but without relief to the thirst or the constant dryness of the mouth. The desire to pass water became more frequent, and the urine much larger in quantity, appearing even more in bulk than the liquids taken during the same period of time; there were also a feeling of general illness and great muscular debility, progressive emaciation, feebleness of vision, loss of virile power, and obstinate constipation; he then came under the cognizance of M. Mialhe. The urine was at once examined, and found to have a density of 1040; treated with potash it gave a dark-brown colouration, indicating the presence of a large amount of sugar. He was ordered to abstain entirely from acidulated drinks, and to take during the twenty-four hours 20 grammes (308 grains) of bicarbonate of soda, and 5 grammes (77 grains) of calcined magnesia; also two bottles and a half of Vichy water. The next day the urine had only a density of 1026 in place of

1040, and did not show a trace of sugar. Under the influence of the alkaline treatment, not only did the sugar not reappear in the urine, but the vision improved, and within two days became perfect. In four or five days the bowels ceased to be constipated, and some diarrhoea and bilious vomitings ensued, which recurred for a few hours; in each following day there was a marked improvement, the thirst became appeased, the urine less copious, the strength and virile power were restored, and after this time the patient was re-established in health, nor did the urine on several examinations give any trace of sugar. He was able to support all kinds of fatigue, and did not restrict himself to diet, but partook equally of animal and vegetable substances, avoiding only all acid drinks. M. Mialhe considers that in this patient the exciting cause was the excess of these acid drinks, and thinks that when it so happens the disease is more easy of cure than when it arises from suppressed perspiration.

The above case was published in 1849; but although many years had elapsed between that date and the publication of the work under consideration, no more recent case is announced, although the plan of treatment proposed is said to have furnished practical results of a most satisfactory character. Such is the theory of M. Mialhe as to the pathology of diabetes, and such the method he proposes for its alleviation or cure. Did the disease depend on the causes he assigns, the treatment would be most simple, and at the same time most complete; we know, however, that diabetes is one of the most intractable of maladies, and that the cures are very rare indeed; and this has been the case, not only before, but since the alkaline treatment has been made known and practised. This fact alone would argue that there is much that is faulty in the hypothesis. Let us now examine a little into the proposed explanation of the nature of glucosuria. We need hardly discuss the subject of the changes which amylaceous matters undergo in the alimentary canal—changes necessary in order that absorption may take place. It is, we believe, generally allowed that starch is changed into dextrine and glucose by the action of the saliva, but more especially the pancreatic fluid, and that it enters the portal vessels in the condition of the latter principle, starch-sugar; whether, however, it passes the liver as such, seems, from the experiments of M. Bernard, somewhat problematical. It appears, also, to be established beyond doubt, that the liver is a great sugar-forming organ, and that a very large amount is prepared by this viscus even when the food is entirely destitute of amylaceous principles, a quantity sufficient to supply the demands of the respiratory process. To this fact, however, M. Mialhe seems to shut his eyes, almost ignoring the truths elicited by M. Bernard, which certainly are among the most completely established of any that can be found in the domains of physiology. But M. Mialhe's theory does not depend on their admission, for it concerns more the destruction of sugar in the blood, whatever be the way it enter this fluid. The pathology of diabetes, however, is much involved in them, for the great question is this—Is there an abnormal formation of sugar in the system, or a loss of power of further decomposing this substance?

We have seen that M. Mialhe assumes that the non-destruction of the sugar is the real cause of its appearance in the urine: is this correct? And again—If so, is it due to a want of alkaline substances in the blood? M. Mialhe brings forward no evidence to prove that the sugar is not decomposed in the blood in diabetic subjects: he tacitly assumes such to be the case, and immediately endeavours to explain why it so happens. There seems, however, to be no proof capable of being brought forward in support of this opinion; as there is no alteration in the respiratory function, no difference in the gases evolved, no diminution of the temperature of the patient,—all of which we should expect were the saccharine matter not burnt off by the respiratory process. And again, other matters, artificially introduced into the blood of these subjects—as salicine, the neutral potash or soda salts, with vegetable acids, as the citrates and tartrates—are decomposed, and the products of the oxidation found in the urine. And lastly, all the phenomena of diabetes may be equally explained by supposing that there is an augmented supply of sugar to the blood, produced, as shown by Bernard, by an exalted glycogenic function of the liver.

Next, as to the explanation of the supposed deficiency of decomposing power in the blood for saccharine matter, we may remark, that M. Mialhe's stronghold is entirely without real support. For it seems questionable whether any neutral carbonates exist in the blood; and the bicarbonates of the alkalis do not possess the power of breaking up glucose; and no attempt has been made to show that the blood is less alkaline, or contains fewer carbonates, in diabetes than in health; and certainly, for the establishment of such an important point, it would not be difficult to procure a sufficiency of this fluid. And again, it is very questionable whether the explanation of M. Mialhe of the causes of the changes which sugar undergoes, is correct. That they take place is undoubted; but the reason may be very different from that assigned by our author. If the theory of M. Mialhe be right, we should be able to produce glucosuria at will, simply by the administration of a sufficiency of acids. This, however, has not been shown to be the case. Again, as we approach the subject of the treatment of diabetes, we discover that the hypothesis is most faulty; for in very many cases to which alkalies have been administered in large quantities, more than sufficient to neutralize any abnormal acid present in the blood, not even a diminution of the sugar has been discovered; and the result of the alkaline treatment has not been such as to justify the conclusions arrived at. The case of M. Garofolini seems to have been an exceptional one; and we know that now and then the disease assumes a form which almost entitles it to be called intermittent diabetes; and this often occurs without any discoverable cause. Sometimes, however, the sugar suddenly disappears, from the supervention of some other affection. From these and many other considerations which we might adduce, we should be disposed to consider the above hypothesis of the proximate cause of diabetes erroneous, until further and much more convincing evidence be brought forward in its favour.

The remaining portion of this chapter, which is devoted to the digestion of albuminoid and oleaginous substances, presents no facts

of sufficient novelty or interest to make it necessary that we pause to dwell upon them, more especially as we have devoted so much space to the discussion of the amylaceous principles.

The second chapter of the book is devoted to the subject of absorption, and to the consideration of medicinal agents which possess the property of rendering the blood either more plastic or more fluid; in this chapter, however, there is nothing which we can select with any advantage. Chapter III. contains researches upon the action of many important medicines, and the same order and plan is followed as in the work published by our author, and to which we before alluded at the commencement of our article—viz., the '*Traité de l'Art de Formuler*;' however, many facts are added, some of them possessing interest. Under the head of iodide of potassium, it is stated that iodine should never be prescribed in a free state, but as an alkaline iodide, and especially as iodide of potassium; and this latter salt should be neutral, and quite free from iodate of potassa. It appears from the researches of M. Leroy of Brussels, that specimens of iodide of potassium which have given rise to much gastric pain and irritation, contained a very notable proportion of iodate of potassa, of which it was very easy to be assured by adding a little concentrated acetic acid to the solution of the salt, which has the power of liberating the iodine from any iodate of potassa, and thus colour the liquid. M. Mialhe states that such impure iodide of potassium is frequently to be met with at the druggists' in France, and that many physicians in that country have seen the symptoms above enumerated produced by it. This last phenomenon he explains by supposing a portion of iodine to be set free by the action of the acids of the gastric fluid.

In this country such iodide has frequently been found in the market, and it arises from the method occasionally employed for its manufacture: when iodine, for example, and caustic potash are brought together, the iodine dissolves, and two salts are formed from the changes which ensue, six equivalents of iodine and six of caustic potash giving rise to five equivalents of iodide of potassium and one equivalent of iodate of potassa; the two salts crystallize together, and by the action of a high temperature the iodate of potassa is resolved into oxygen and iodide of potassium, and thus six equivalents of the latter salt result; if, however, the last part of the process is not perfectly performed, a portion of the iodate remains undecomposed, and contaminates the salt. When, however, the process prescribed in the Pharmacopœia of 1836 is made use of, which is effected by the decomposition of the iodide of iron, there is no fear of any such impurity being present. In the present London Pharmacopœia, although no process for the preparation of the salt is given, yet a test is indicated which has for its end the discovery of any iodate, should it be present. Thus it is stated that when to a solution of the salt, starch and tartaric acid are added, no blue colour should be developed. Tartaric acid has no power of decomposing iodide of potassium and liberating iodine; but if the slightest trace of iodate of potassa be present the iodic acid is set free, which immediately gives rise to the production

of the intense blue colour by the formation of the iodide of amylin. Iodide of potassium containing iodate, colours the ointment yellow, and often itself becomes discoloured from free iodine being evolved. As yet we have not noticed the physiological symptoms described by MM. Leroy and Mialhe; whether their explanation is correct might easily be tested by administering small doses of the iodate itself, and comparing the effects with those induced by corresponding doses of free iodine; perhaps iodic acid itself would prove very irritating.

A very considerable space, more than sixty pages, is devoted to the consideration of the preparations of iron; and the investigations of M. Bouchardat, M. Quevenne, and others, as well as those of the authors, are detailed; to attempt to illustrate these at all fully would occupy a space far exceeding our prescribed limits, and we shall therefore confine ourselves to giving the conclusions which are arrived at:—

1st. All the preparations of iron, which are either themselves soluble, or capable of becoming so under the influence of the acids of the gastric juice, and which are able to be decomposed by the alkaline substances contained in the blood, can be advantageously employed in the treatment of those affections which call for the use of iron.

2nd. All the preparations of iron, either soluble or capable of becoming so under the influence of the acids of the gastric juice, but which are *not* able to be decomposed by the alkaline substances contained in the blood, cannot be advantageously employed in the like affections of the system.

3rd. Preparations of iron having the peroxide for their base, as well as those containing the protoxide, can be successfully employed in increasing the amount of blood-globules in anemic conditions of the habit.

4th. The oxides of iron, which produce the physiological effects of the metal, have no need to be united either to carbonic acid or any organic acid, in order to become assimilable.

5th. The preparations of iron with either the peroxide or protoxide for base have the same final efficacy, but the latter, if little soluble, require to be administered for a much longer time; the chemical reason for this is evident.

6th. The insoluble iron preparations constitute a class of medicines having a real therapeutic value, although slow in action, possessing no activity except from the acids contained in the gastric fluids; and as this acidity is limited in quantity and variable in different patients, the therapeutic activity of these drugs must be so likewise, and depend much upon individual peculiarity.

7th. The insoluble preparations do not produce their maximum intensity of therapeutic effect unless administered in divided doses.

8th. That among the insoluble ferruginous preparations of iron employed in medicine, the metal itself in a highly divided state, and the proto-carbonate, hold the first rank for activity; then the magnetic oxide; afterwards, among the least valuable, the red oxide of iron and Prussian blue.

9th. The soluble iron preparations are in general more active than those which are insoluble.

10th. All the soluble preparations of iron are not equally efficacious, many of them, from the acids with which they are combined, acting as astringents or styptics; as it is necessary to dilute these with a large quantity of water, their absorption is always imperfect—a circumstance which has induced some authors, especially M. Bouchardat, to erroneously look upon them as ineffectual in curing anæmia.

11th. The soluble salts of iron being capable of absorption without the aid of acids in the alimentary canal, those having the peroxide for their base, have (contrary to what occurs with the corresponding insoluble compounds) as much or even more activity than the ferruginous preparations which are capable of being decomposed by the alkalis of the blood. It suffices to cast a glance upon their per-centage composition, to know at once which is the most active. Being equally capable of absorption, that which contains most iron is the most powerful; the action of the ferruginous salt depending entirely on the contained iron, and not on the acid or other base which may be present.

12th. Among the soluble preparations of iron, those which at the same time possess least taste, are most rich in iron, and most completely absorbable, should be preferred; and no preparation of iron in these respects can be put on the same level with the tartrate of potash and the peroxide of iron—the ferri potassio-tartras of our Pharmacopœia.

13th. The above salt, associated with the iodide of potassium, constitutes an ioduretted medicine more rational than any containing the iodide of iron, and able to be substituted with the greatest advantage in the treatment of those affections which call for the united employment of iodine and iron.

Such are the conclusions (by no means novel) arrived at by M. Mialhe, and in the main we should be disposed to agree with him. Having paid considerable attention to the subject, and clinically investigated the action of the ferruginous preparations, we feel somewhat confident in giving expression to our opinion upon this point. We are perfectly sure of the correctness of the first conclusion, that all preparations of iron, with the exception of the few indicated in the second proposition, are effectual for the cure of anæmia. We have tried every variety—iron itself, the protoxide and proto-salts, the peroxide and per-salts, together with the numerous ferruginous compounds in which the exact condition of the iron is somewhat doubtful (we allude to the citrates, tartrates, &c., containing some other base)—and we have invariably found that by their use the blood-corpuscles, if deficient, are augmented in amount; although we are equally persuaded that some preparations are more powerful than others, or will produce the effects in a shorter time. The preparations which contain iron, but which probably produce no effect on the system from the presence of this metal, are the ferro-cyanide of potassium, the sulpho-cyanide of potassium and of iron. These are not decomposed in the blood, but rapidly pass through the kidneys, and hence cannot aid in the formation of the blood-globules. The third and fourth conclusions are specially dwelt upon, M. Bouchardat having

asserted that the per-salts of iron acted only as astringents, and not as reconstituent or analeptic tonics; and that it was necessary to unite the protoxide with either carbonic acid or an organic acid, in order that it should be assimilated by the system. The assertions of M. Bouchardat are manifestly erroneous, every day's clinical experience proving that both the per-salts and the proto-salts, with a mineral acid, are capable of curing anæmic conditions of the habit. As to the fifth and sixth conclusions, we believe that experience has fully demonstrated that a considerable difference exists in the different preparations of iron in their capacities of blood-restorers. This often depends on the greater insolubility of some compared with others; sometimes on the small amount of iron contained in the doses of certain of the per-salts, the doses being regulated more by their astringency than the quantity of contained metal. This is the case, for example, with the tincture of the sesquichloride of our Pharmacopœia—the amount of iron in the ordinary dose of this preparation being very small indeed, and quite insufficient to cause a speedy effect. The condition of the stomach has doubtless a powerful influence, and many of our most powerful ferruginous preparations depend for their efficacy upon the solvent power of the gastric juice; hence the great importance of administering these drugs at the time of taking food. This applies especially to those which are administered in the form of powder or pill.

We should be willing to agree with the statements in the seventh and eighth propositions; for it stands to reason, that if a given amount of a very insoluble compound be taken at once, it will only be acted on by a small quantity of the dissolving agents of the intestinal canal, compared to that which would operate if the preparation were divided into many portions and given at intervals. This holds good not only with the little soluble preparations of iron, but likewise with those of other metals: for example, a few grains of calomel, if administered in one dose, will produce a purgative effect, and but little may be absorbed; if, however, the same quantity be much divided, and given at short intervals, the constitutional effects of the drug will probably become manifested. With regard to the order in which the so-called insoluble preparations are arranged—namely, the highly divided metal, the proto-carbonate, the magnetic oxide, then the red oxide or real per-oxide, and lastly, Prussian blue or ferro-cyanide of iron—our own experience would lead us to class them in about the same way. That the metal itself in a highly divided state, as *Fer réduit*, is a most active and valuable drug, we can assert with the greatest confidence, having used it in a great number of cases of anæmia with the most complete success: although insoluble in water, yet it appears to be rapidly acted upon by the gastric secretion, and is doubtless absorbed into the blood as a proto-salt; its rapidity of solution is evidenced by the generation and evolution of hydrogen, a circumstance which now and then militates against its employment. The proto-carbonate is also a valuable preparation, if properly preserved, as in the *ferri carbonas cum saccharo* of our Pharmacopœia, or in freshly prepared *mistura ferri* or *pilula ferri composita*.

The magnetic oxide, although a useful and cheap compound, is certainly far less soluble than the metal or proto-carbonate, and the solubility differs much with its method of preparation; when made by precipitation and carefully dried, it dissolves more readily than if prepared from iron scales, as is often the case: the peroxide, again, is efficient, but little is dissolved at a time—hence it may be given in very large doses without the production of any prominent symptoms. This preparation also is apt to differ much in quality; if made merely by precipitation of the sulphate, as in the formation of the old carbonate of the Pharmacopœia, it is considerably more soluble than if afterwards heated, which is sometimes done to improve its colour: the peroxide of iron has, however, a great tendency to assume an insoluble condition. With regard to the Prussian blue, we have not had sufficient experience of its effects as a blood-restorer to enable us to give an opinion as to its value: our impression is that it would prove very inert.

As to the ninth proposition, that the soluble iron preparations are in general more active than the insoluble, although in most cases true, yet we should be inclined to except the *Fer réduit* and the proto-carbonate; the former is certainly equal to any ferruginous compound, even the most soluble. In the remaining propositions we have little to notice, many of them being almost self-evident; however, we should be certainly inclined to differ from M. Mialhe with regard to the peculiar efficacy of the tartrate of potassa and iron. That it is a very efficacious salt we do not for a moment hesitate to allow; but that it is much, if in any degree, superior to the ammonio-citrate of iron, ammonio-tartrate of iron, or many other similar salts which have or could be formed, we are inclined to doubt or even deny. Most of the important remedies are brought under consideration in a manner more or less similar to that in which the iron preparations are treated; much, however, contained in this part of the work has been known to the profession for some years before the publication of the '*Traité de Formuler*,' or other writings of M. Mialhe.

The remaining chapters of M. Mialhe's work are more especially devoted to pharmacology, and many useful hints may be obtained from their perusal. In conclusion, we consider that the work we have passed under review contains much that is important both to the physician and pharmacologist, although it is by no means intended as a complete treatise on the various subjects. Frequently certain points only are touched upon, and these often but slightly. M. Mialhe certainly possesses much ingenuity, and has a happy method of explaining difficulties; but, as we have before observed, questions are very apt to be discussed in a partial manner, and there is also great evidence of a want of physiological knowledge and of clinical experience.

Dr. Wood of Philadelphia, a gentleman well known in this country by his work '*On the Principles of Medicine*,' and, in conjunction with Dr. Bache, as the author of the '*United States' Dispensatory*,' has within the last few months issued a new work on therapeutics and

materia medica, more particularly, however, devoted to the consideration of the action of medicines; and "while it aims to present whatever in therapeutics and pharmacology is directly and practically important to the physician, is intended also to be an exponent specially of what the author himself knows and believes on the subjects of which it treats." Dr. Wood has had good opportunities of being well acquainted with the science upon which he now discusses, having for thirty years been a teacher of the subject at the Philadelphia College of Pharmacy and the University of Pennsylvania; and having also for twenty years held the office of Physician to the Pennsylvania Hospital, which has given him facilities of testing the value of remedies greater than any amount of practice could afford. Dr. Wood's present work receives additional interest from the following statement, found at the end of the preface:

"This is probably the last professional treatise of the author, as with its publication he will have exhausted what he has to communicate on those departments of medicine to which he has given a special attention; and advancing years warn him that the time is fast approaching, when a failure of faculties, or the termination of life, will render labour in any new field impracticable. He asks for it only the same kind consideration which he has had occasion to acknowledge for his other works, and which has bound him to the profession by the strong ties of gratitude, in addition to those of duty and affection."

We trust that the author may long live, if not to produce another work, at least to enjoy his well-earned reputation as an ardent and industrious cultivator of medical science.

Of a work in two thick volumes, and containing 1741 pages, it would of course be impossible to present to our readers anything like a complete analysis; this, therefore, we shall not attempt, but by making selections from a few of the numerous subjects, give an idea of the mode in which the whole is executed.

The work is divided into two parts, the first affording an account of general therapeutics and pharmacology, and containing chapters on the operation of medicines, the effects of remedies, the mode in which they are applied, and the method of classification. The whole of this part occupies but ninety-one pages, and calls for no special remarks; the classification takes for its basis the physiological effects produced by the medicines, and is practical in character, attempting no useless refinement. The second part, including the chief portion of the treatise, is devoted to the consideration of the action of individual remedies, and of the groups in which they are arranged. The mode of preparation of the different drugs, the sensible and chemical properties, are but shortly touched upon, the reader being in many cases referred to the United States' Dispensatory for more minute details, and therefore the chief space is given to the effects produced on the system, and the medical uses of the various preparations. Under the article Tea and Coffee, a much more lengthened account of the action of these dietetic substances is found than is usually the case in works on therapeutics; and as we are convinced from experience that the influence of these articles of food upon the system is much more

potent than is generally supposed or allowed, we will give an extract from the work, showing the author's experience upon this subject, which in the main agrees perfectly with our own. When describing the effects of these substances, our author states—

“The first effect of a moderate quantity is usually a warming, cordial impression on the stomach, which is followed after a short time by an agreeable feeling of comfort, satisfaction, and an obvious exaltation of the imagination and intellectual faculties. The disposition to cheerful conversation, or to other exercise of the mental powers, is continued along with this increase in their vigour. Every one accustomed to witness social coffee- or tea-drinking, must have noticed the increased vivacity, the more rapid interlunge of thought, the general buzz which spreads through the company after partaking of the beverage. The student finds himself capacitated for a clearer understanding and more prompt appropriation of the subjects of his study, the writer for a more vigorous exercise of his mental powers, a quicker and happier arrangement of his thoughts or fancies, and a much greater facility of expression. In my own person I every day experience something of this effect from black tea. For hours after dinner—even a moderate and entirely temperate dinner—I am often unable to perform at all to my own satisfaction any intellectual task which may have devolved upon me. An immediate change is produced by the tea, and after the closing meal of the day, I find myself possessed of my intellectual capabilities, whatever they may be, to their full extent. Along with this nervous excitement there is a strong tendency to wakefulness produced, and under the influence of the beverage, if taken rather late in the evening, one's labour may often be prolonged far into the night, without any sense of fatigue or disposition to sleep. One or two strong cups of coffee at bedtime not unfrequently prevent sleep for the whole night, and persons who wish to watch prepare themselves often in this way. During all this time there is little acceleration of the pulse, and that which may be noticed is probably rather owing to the reaction of the excited nervous centres upon the heart, than the result of a direct influence upon the circulation. The state of exaltation subsides after many hours into a corresponding depression, and the self-indulgence is paid for the next day by a feeling of gastric uneasiness, languor, and general *malaise*, which gradually wears off or disappears under a repetition of the stimulant. It will be readily understood, therefore, that the habit of coffee-drinking is not on the whole healthful, unless carefully guarded as to extent, or counteracted by active physical exercise. I shall refer directly to the evils which are apt to result from the abuse of this luxury.

“When coffee is taken in excess, it causes a feeling of oppression or anxiety in the epigastrium, with over-excitement of the nervous system, indicated frequently by vertigo, headache, palpitation, muscular tremors, and other symptoms of irritation of the nervous centres. But, even in the largest quantities, it never produces, so far as I have ever witnessed, intoxication or stupor, or any other of those peculiar effects on the brain which characterize the cerebral stimulants or stimulating narcotics in full action.

“The habitual use of coffee in excess is very apt to occasion a train of very disagreeable and annoying symptoms, which can only be got rid of by abandoning the habit. The constantly repeated over-excitement, followed by the as constant depression of the nervous functions, gives rise at length to persistent irregularity, and the exhaustion of the excitability of the nervous centres by the strain to which they are subjected ends in a deficiency of power and a consequent insubordination of all the functions placed under their regulating influence. These effects are especially displayed in persons of susceptible nervous temperament and those of sedentary habits. Some individuals appear to be almost insusceptible to influence of any kind from the

ordinary use of coffee; and its effects, whether direct or indirect, may be greatly controlled by habits of steady and vigorous muscular exercise. Indigestion, habitual constipation, and torpor of the liver, are among the effects of its abuse, exhibited in the digestive functions; nervous headache, sick headache, vertigo, various disorders of sight and hearing, neuralgic pains, and an infinite diversity of disordered sensation, palpitations, muscular tremors, hysterical symptoms in women, hypochondriacal in men, are some of the consequences of the same abuse in the nervous system. As the bloodvessels are little excited directly by the stimulant, the vascular system is apt to suffer less than the nervous, and it is unusual to encounter from the abuse of coffee any of those inflammations—as of the stomach, liver, brain, &c.—which are so apt to follow the use of the cerebral, or even the arterial stimulants in excess. Hence it happens that, unless the nervous disorder has been so long continued as to have at last brought about organic change, all that is necessary in order to escape from the evils is to abandon the use of coffee.

“As illustrative of the above statements, I will observe that, personally, being of a somewhat nervous temperament, I am unable to use coffee steadily without much suffering; and the same peculiarity belongs to most of my immediate family. For years I was troubled with frequently-recurring nervous headache, which at times incapacitated me for the performance of any active duty. Scarcely a day passed without some uneasiness or deranged sensations in the head—such as roaring, buzzing, and singing in the ears, sounds as of pounding or bell-ringing in the distance, swimming or vertiginous feelings, *muscu volitantes*, &c. &c.; and I never walked in the streets without the fear of a sudden attack of these symptoms, which, when they came, took away all mental energy. It occurred to me that a single cup of coffee which I took daily in the morning, and to which I had reduced myself from the necessity of escaping dyspeptic sufferings, which a more free use of it had occasioned, might be the cause of these distressing phenomena; I abandoned the habitual use of it, substituting black tea for coffee; and from two weeks after that time up to the present, a period of many years, I have been almost entirely free from the symptoms referred to.”

Our personal experience bears out much of what we have just quoted as to the powerful influence of tea and coffee, often in cases where it is little suspected: we have seen intermittent action of the heart, faintness, vertigo, wakefulness, atonic dyspepsia, with flatulence and other symptoms, caused by the employment of these beverages, and their entire and instantaneous cessation when they were discontinued; and we are quite convinced that, however valuable they may prove in certain individuals, in others they are productive of much harm and discomfort, which not unfrequently pass undetected for years, being only discovered by their accidental omission for a time. Probably the symptoms are induced by the *caffeinè* or *theine*, as the same phenomena are produced in susceptible individuals by either beverage, the difference being only in degree; and again, the same crystalline principle is contained in both. Cocoa or chocolate (possessing *theobromine* as its active principle) certainly does not produce the effects of tea or coffee to the same degree, and may generally be made use of with advantage by those who cannot employ the other beverages.

The following is the opinion of our author with regard to the use of tobacco, which as it is derived from watching its effects in a country where the leaf is by no means sparingly employed, may be of interest, especially as the subject has recently attracted so much attention:

"The habitual use of tobacco by smoking, chewing, or snuffing, if indulged in moderately, is not generally productive of any obvious injury to the health; but in some individuals of nervous temperament, or great susceptibility of the nervous system, it cannot be employed even in small quantities without injury. In excess I have no doubt that it is often very injurious, greatly impairing the vigour of the nervous system, and of the health generally, and probably shortening life, if not directly, at least by rendering the system less able to resist noxious agents. The effects most frequently induced are *dyspepsia, defective nutrition, paleness and emaciation, general debility, and various nervous disorders*, of which the most frequent are *palpitations of the heart, hypochondriacal feelings, and neuralgic pains*, especially of the head and eyes. Very great habitual excess seems to be capable of directly inducing a condition similar to that induced by the omission of alcoholic drinks in the case of the drunkard; a condition prominently marked by muscular tremors, obstinate wakefulness, and hallucinations. The late Professor Chapman informed me that he had witnessed several cases of delirium resulting from tobacco, closely resembling delirium tremens, which ceased upon the omission of the drug. This fact very strongly illustrates the opposite effects of tobacco and alcohol; a condition being produced by the direct influence of the one, very analogous if not identical with that resulting from the omission of the other; even insanity has been ascribed to the abuse of tobacco. Snuffing appears to be less injurious to the general health than either smoking or chewing; but there can be no doubt that it is more or less hurtful in excess, and at all events it is apt to occasion diminished susceptibility of the sense of smell, and a disagreeable alteration of the voice."

The work before us differs in many respects from those devoted to the same subjects in our own country, in containing accounts of many drugs which are little, if at all, known amongst us. Many plants are employed in the United States not contained in our Pharmacopœia, and although the effects of perhaps the majority can be obtained by the use of such as we possess, still there seem to be some essentially different; we will select one of these, and quote Dr. Wood's remarks upon the action which it exerts upon the system: the plant we have chosen is the *Veratrum viride*, or the American Hellebore, called also the Swamp Hellebore, the rhizome of which is official in the United States' Pharmacopœia.

"Locally applied, American hellebore is capable of producing irritation, rubefaction, and even vesication of the surface. Snuffed into the nostrils in the form of powder, even much diluted, it acts as an errhine and sternutatory. Its acrid impression on the mouth and fauces, when chewed, has been already mentioned. When swallowed, it is apt to cause uneasiness in the epigastrium, which, when the dose is sufficiently large, is followed by nausea and vomiting, the latter effect being often protracted, and attended with much retching, and sometimes with hiccough. Dr. Osgood noticed in his own case, that the vomiting was effected by a spasmodic contraction of the stomach itself, without participation of the diaphragm and abdominal muscles, and in another individual was preceded by a sensation as of a ball rising in the œsophagus, the result, no doubt, of a spasmodic contraction of that tube. The antecedent and attendant nausea does not seem to be severe, though the prostrating effects on the system, as will be more particularly noticed directly, are often very striking. The emesis is usually later in occurring from this than from other emetic medicines, three-quarters of an hour or more not unfrequently elapsing after its exhibition before its effect is experienced. A fact which, considering the drastic properties ascribed to *veratrum album*, was not anticipated, but which appears to have been confirmed by almost all who have reported their

experience upon the action of the medicine, is that *it seldom, if ever, purges*. The remarks hitherto made have reference to its local operation; its effects on the system are even more striking. From doses insufficient to vomit, along with the epigastric uneasiness, or independent of it, there are sometimes feelings of chilliness and considerable diminution in the frequency and force of the pulse, with a sense of weakness in certain muscles, or want of due command of them, which are probably the results of a direct sedative influence upon the nervous centres. As a proof that it is not from the depressing influence of nausea that the reduction of the pulse takes place, Dr. Norwood states that he has reduced it as low as thirty-five in a minute, without the least nausea and vomiting. He also speaks of a feeling of numbness and tingling which he had experienced about the joints previously to vomiting, as well as during and after that process. We are told by Dr. Osgood that the farmers in New England, in order to protect their crops from birds, were in the habit of scattering in their fields grains of corn which had been soaked in an infusion of the root of the American hellebore. Soon after eating this grain, the birds became incapable of running or flying, so that they were readily caught; but if left undisturbed for a time, they recovered from the paralyzing effect, and flew away.

"When the medicine is carried so far as to produce nausea and vomiting, its depressing effects on the circulation and nervous system are often very striking; the pulse falls from 75 or 80° down to 35 or 40°, and at the same time becomes small and feeble, and occasionally almost imperceptible. The surface is pale, and covered with a cold sweat, the patient at the same time experiencing a sense of chilliness, and sometimes of tingling or numbness: headache, vertigo, dimness of vision, with dilated pupils, faintness, a feeling as of stiffness of certain muscles, and a want of command over them, are other symptoms evincive of the sedative operation of the medicine. These signs of prostration are sometimes so great as to become alarming, although I have seen no account of fatal poisoning.

"All agree in the statement that the general depressing effects on the nervous system and circulation are attended with stimulation of the secretory functions. The salivary, pulmonary, biliary, and urinary secretions are increased, it is asserted, by doses insufficient to occasion nausea and vomiting; and during the existence of this condition, the same effect is produced upon the function of the skin."

From this account, it would seem that the American hellebore possesses powers unlike either the *Veratrum album* or the *Colchicum autumnale*; and we know that, although the two latter belong to the same botanical natural order, yet they differ much in their physiological action, both containing very potent yet different active principles. May we not therefore possess in the American plant a new therapeutic agent possessing powerful and valuable properties?

We can most heartily and sincerely recommend Dr. Wood's 'Treatise on Therapeutics and Pharmacology' to the notice of gentlemen engaged in the practice of medicine, feeling convinced that they cannot fail to derive much benefit from its perusal. The work has no great pretensions to originality, or of containing any very special or profound inquiry; but while it supplies the general information which we look for in a book of this kind, it also embraces the results of the careful observations of a highly-educated and talented physician during a long and successful professional career, which give the work a peculiar and valuable stamp.

PART SECOND.

Bibliographical Record.

ART I.—*On the Diseases of Women ; including those of Pregnancy and Childbed.* By FLEETWOOD CHURCHILL, M.D. Trin. Col. Dublin, M.R.I.A. Fourth Edition.—*Dublin*, 1857.

THE present edition of Dr. Fleetwood Churchill's well-known treatise fully supports the reputation of the original work, and contains, in a condensed and well-arranged form, an admirable *résumé* of the present state of professional opinion and practice in regard to the several diseases upon which it treats. As compared with the former edition, many alterations and additions have been made : some new chapters have been added, others have been either pruned down or expanded, and much new matter has been introduced in several parts of the work. In its present form, we have no hesitation in stating, that we regard it not only as an admirable text-book, but as one of the most comprehensive and systematic treatises on the diseases of females which has ever issued from the medical press of this country.

Of the new chapters introduced, we find one respectively upon Urethritis, Occlusion of the Vagina, Pelvic Abscess, Occlusion of the Os Uteri, and Ovarian Irritation in the Non-Puerperal Female ; and upon Tetanus, Convulsions, Paralysis, and Arterial Obstruction in Puerperal Women. We have in a recent number given an epitome of what is known respecting the two latter diseases—viz., tetanus and arterial obstruction—and need not further allude to them here : but the subject of paralysis is one which has scarcely received adequate attention ; and as it is very fully treated of by our author, we subjoin a brief summary of the chief facts and conclusions to which he has arrived respecting it.

The literature of our profession, we may premise, is singularly barren on the subject of this disease. Neither the works of the principal obstetric writers, nor those on the diseases of females, or the practice of medicine generally, contain more than the most meagre and cursory information respecting it. Our author has, however, collected thirty-five cases of the disease from various friends and authorities, and from them the following statistical facts and conclusions are deducible.

Of the 35 cases, there were 18 of complete, and 1 of partial Hemiplegia ; 4 of paraplegia, in 2 of which one leg only was affected ; 6 of facial paralysis ; 5 of amaurosis ; and 3 of deafness.

Of the 35 cases, in 23 the attack occurred during pregnancy, and in 12 either during or after labour. Of the former, 13 were cases of hemiplegia; 1 of paraplegia, which had occurred previously; 4 of facial paralysis; 2 of amaurosis; and 3 of deafness. The seizure took place at variable periods of gestation, but more frequently in the later than the earlier months. Of 20 cases, 12 appear to have been cured before or by delivery, and in 8 the disease continued for a longer or shorter time afterwards. Of the 23 cases only 1 died, and in this it is evident that death was rather owing to disease of the brain of longer standing than the pregnancy, than to the paralysis, which increased during the process. In 3 cases only was the paralysis preceded by convulsions, and in the majority it does not appear that there were any premonitory symptoms, such as headache, or any other circumstance calculated to excite apprehension, before the paralysis supervened.

Of the 12 cases that occurred during or after labour, in 3 only did the paralysis take place during labour, and of these 2 were cases of convulsions. In all the others, it not merely succeeded labour, but, in the majority, after a considerable interval. Of these 12, 5 were cases of complete hemiplegia; in 1 only the arm was affected; 1 was a case of complete paraplegia; in 1 the right and in 1 the left leg was paralyzed; 2 were examples of amaurosis, 1 of facial paralysis; and in 3 only of the cases of hemiplegia the face participated in the attack. Other peculiarities might be added, but it is more important to observe that in the majority it took place without warning and without any obvious cause. The paralysis gradually subsided in most cases, but 3 proved fatal.

In speculating upon the nature and cause of the disease, our author dwells upon the fact, that in most of the cases the attack occurred without warning and without apparent cause. In only one case, for example, did it appear to depend upon any external influence—upon cold, exposure, violence, &c., or upon mental distress; and in few, if any, was there evidence of previous cerebral congestion or disease of any organ. Other causes are instanced, but their operation is assumed to be more than doubtful in the production of the disease; and, upon the whole, our author leans to the opinion that the kidneys play a more important part in the causation of these affections than has been suspected, and that the subject deserves more attention than it has received.

"For," he observes, "we find that in cases of convulsions terminating in paralysis, we may have albuminuria; in paralysis before delivery, without convulsions, we may have albuminuria; in paralysis occurring after delivery, we may have albuminuria; and further, that in the slightest cases, both the convulsions and paralysis diminish with the decrease of albuminous secretion. Whether, therefore, the paralysis be caused by the state of the kidneys, or the renal congestion and paralysis be both the result of some morbid matter in the blood circulating through the system, it is clear that a new element may be added to those which have usually been considered as giving rise to paralysis."

This view suggests to our author the necessity of directing our attention to the relief of the renal malady, and the restoration of the kid-

neys to such a state of efficiency as may enable them to remove the morbid constituents of the blood. We will not enlarge upon this part of the subject, but submit that the researches in question fully prove that a relationship exists between certain forms of paralysis and pregnancy on the one hand, and albuminuria on the other. Whether, however, this is fixed or casual, accidental or constant, is a matter which we are at present unable to decide, and which must therefore remain to be determined by further and more extended inquiries.

Of the additional chapters introduced into the sections on the diseases of the non-puerperant female, in this edition, the most original is probably that on ovarian irritation—a form of disease which our author believes to be very common, although little noticed in medical works. It is characterized by uneasiness or pain in one or both iliac or inguinal regions, but most frequently the left—probably from the propinquity of the left ovary to the rectum, and its exposure to any irritation thence arising. The pain may be a constant dull aching, or it may be acute, or occurring in paroxysms, and is greatly aggravated by standing and generally by walking. No tumour is perceptible in the seat of pain; but there is generally much tenderness, and in some cases great irritability, of bladder. Hysterical paroxysms are by no means unfrequently coincident.

We will not enlarge upon this subject beyond referring our readers to the author's opinions and practice in regard to it as embodied in the chapter referred to, and observing that we have long been cognisant of the existence of such a disease. We believe it is not at all unusual to meet with cases in which one or both ovaries are in a state of morbid sensibility—in which the ovarian region is exquisitely tender on pressure, in which there is no evidence of vascular or organic disease, and in which the symptoms subside under treatment addressed solely to the relief of an exalted or perverted state of the sensibility of the organ. We have regarded this lesion of the ovaries as analogous to that of the uterus known as the "irritable uterus," and have been led to consider both as being generally dependent upon various sources of irritation secondarily reflected from a distance upon the uterine and ovarian organs. We may remark that, in the practice of our author, the most successful treatment for the ovarian affection has consisted in the introduction into the upper portion of the vagina, by means of the speculum, of a pessary containing two grains of opium, half a drachm of white wax, and a drachm and a half of lard—the patient being directed to remain in bed during the remainder of the day.

There is one omission which we would advert to in the work—viz., the comparative absence of information upon the subject of syphilitic affections of the uterine organs. We believe that a chapter might have been advantageously introduced, embodying the various facts which have been collected on this subject by various writers; and we would recommend it to our author as worthy of his consideration in the preparation of another edition of his work. In Nos. 98 and 99 of the 'Association Medical Journal' (New Series), an elaborate paper will be found, by Dr. F. W. Mackenzie, embodying the results of a

lengthened inquiry on this subject; and from the facts collected by him, he is led to conclude that the uterine organs suffer largely from, or participate in the effects of, syphilis upon the female constitution; and that such derangement is variously manifested by lesions of innervation, of menstruation, of mucous secretion, and of reproduction; whilst, in its progress, lesions of the mucous membrane and of the structure of the cervix are met with, the exact relations of which to syphilis are less obvious, and cannot so specifically be determined. Whether the views of this writer are correct to the extent he has contended for, is a question which further inquiries must determine; but the subject in itself is one of great social and scientific importance, and well worthy of the consideration of those who, like our author, are professedly engaged in sifting and determining the value of medical evidence.

With this exception, very little indeed that is practically useful in contemporaneous medical literature appears to have escaped the attention of our author, and we are glad to find that in his commentaries upon some of the more recent novelties introduced into uterine practice, his opinions are in harmony with our own. Thus the value and pathological importance of inflammation and ulceration of the cervix uteri are reduced to their legitimate limits; the mechanical means proposed for the cure of various flexions, versions, and obliquities of the uterus are accepted with becoming qualification; and the indiscriminate division of the cervix uteri for the relief of certain forms of dysmenorrhœa is justly represented as a hazardous and doubtful proceeding.

ART. II.—*On the Prevention and Treatment of the Sheffield Grinders' Disease.* By J. C. HALL, M.D., Physician to the Sheffield Public Dispensary, &c. With six Illustrations.—London, 1857.

AMONG the numerous arguments that may be adduced in favour of allowing our beards to grow instead of wasting our time every morning in scraping them off, not the least is, that it would render unnecessary the use of razors, and consequently, *pro tanto*, diminish the Sheffield grinders' disease. Dr. Hall brings good evidence to show the fatality among the men employed in grinding razors and other cutlery, owing to a form of chronic pneumonia produced by the inhalation of fine particles of steel given off in grinding. Much may evidently be done to diminish the danger inherent in the occupation by protective appliances: thus we find that the average age of grinders at death at the works of Messrs. Rogers is 42, while in the Suffolk Works it is 38½, owing to the difference in the arrangements at the respective manufactories. A characteristic feature in the expectoration, and in the lungs themselves, is the presence of large quantities of black matter, both disseminated through the organs and accumulated in globular spots over the surface. No steel appears to have been found in the lungs; but it would be interesting to know whether these lungs contain any unusual amount of iron, as it is not improbable that the steel inhaled might be altered

by oxidation, and thus in part give rise to the black deposit. The greater part of this must be regarded as a secretion from the blood, especially that found in the bronchial glands, which are also in a melanotic condition.

We recommend this contribution to the history of industrial pathology to the attention of all who are interested in this important subject, whether on scientific or on philanthropic grounds.

ART. III.—*The Asylum Journal of Mental Science.* Published by authority of the Association of Medical Officers of Asylums and Hospitals for the Insane. Edited by JOHN CHARLES BUCKNILL, M.D.—London, April, 1857.

THE Association of Medical Officers of Asylums and Hospitals for the Insane is, it appears to us, admirably represented in the 'Asylum Journal,' of which we now have the twenty-first number before us. The general tendency of the periodical is one that maintains and fosters the vital connexion existing between the science of medicine at large, and its offspring, the science of mental disease. As long as derangements of the mind were regarded simply as a mysterious dispensation of Providence, offering no analogy with other forms of disease, it could not be expected that great advances would take place in our knowledge of their intimate nature. The fatalistic view was a barrier to all progress. A very able article, by Dr. Bucknill, in the April number of the 'Asylum Journal,' is devoted to the consideration of the relation of mental pathology to the physical agent of the mind. The path which the author pursues is, to our appreciation, one of legitimate induction; and we cannot but think that the physiological principles upon which he builds his superstructure are correct in the main. The essence of his views may be given in his own words:

"Mental health is dependent upon the due nutrition, stimulation, and repose of the brain; that is, upon the conditions of the exhaustion and reparation of its nerve substance being maintained in a regular and healthy state; and that mental disease results from the interruption or disturbance of these conditions."

This doctrine receives considerable development, and is very ably supported, so as to merit the special attention of all who are interested in the study of the human mind, in its healthy or diseased manifestations. We meet with Dr. Bucknill again in the same number, discussing the important question of asylum architecture and arrangements.

Dr. Wood, formerly the medical officer for Bethlem, brings forward strong arguments for the establishment of a State Asylum. The present condition of criminal lunatics appears to be one calling for speedy reform:

"Monstrous as it must appear to all who ever give a thought to the subject, the acquittal, of *whatever offence*, on the ground of insanity, leaves no alternative. The unfortunate offender may not now be dealt with but as the most atrocious villain who ever disgraced our nation. Of gentle, or it may be noble birth, it matters not that he may up to this moment have pursued a virtuous, honour-

able, and useful career; the law recognises no distinction between such a one and the convicted felon who has become insane while undergoing his punishment."

The principle upon which the reform should be carried out is manifest. We trust that Dr. Wood will not be deterred by the difficulties that meet all innovators from pushing forward his propositions until they are realized.

Dr. Tuke supplies a paper on the various forms of mental disorder, and Dr. Boyd furnishes one on epilepsy; both deserving of careful perusal. Reviews and Retrospects complete the number.

ART. IV.—*The Functions and Disorders of the Reproductive Organs in Youth, in Adult Age, and in Advanced Life, considered in their Physiological, Social, and Psychological Relations.* By WILLIAM ACROB, late Surgeon to the Islington Dispensary, and formerly Externe to the Venereal Hospitals, Paris.—London, 1857. 1p. 108.

WE doubt whether, among our human relations, there is one that exerts a greater influence upon most of us than that which draws its impulses from the sexual feelings. Indirectly, it governs the whole life of the female, from the time at which she dandles her first doll to the time when she teaches her grandchild "pattycake, pattycake;"—the vices and the virtues of the sterner sex—less confessedly, perhaps, but no less really—result from the vagaries and dreams of boyhood, or the waywardness or resolution of adult age, that are prompted by the sexual instinct. No Draconian law can fetter the strongest impulses of our nature, and yet from the commencement of society, religion and social morality have enjoined the necessity of restraint; the highest rewards being the necessary lot of those who keep their body in subjection, while the train of evils, physical and moral, which inevitably pursue the Claudios of society, are almost identical with the miseries that surround us on every side; and yet, though so fertile a source of wretchedness,—though

"Our natures do pursue,
Like rats that ravin down our proper lane,
A thirsty evil,"—

what has been done, beyond passing certain enactments, which all but connive at the wide-spread taint, to check the social plague, and to spread a knowledge of the laws which bind together the physical and moral duties of man? The youth is left, in the most important question of life, to learn by sad experience—experience that often is synonymous with ruin—what he ought to have avoided; he is introduced by the very men who most should guard him and guide him, to the debaucheries of heathen mythology; and the silly prudery which ignores the sexual feelings of the adolescent, allows him to revel in the prurient tales of Lemprière. But who shall teach the guides and open their eyes? We have here one additional argument to the many that have already been urged, for the spread of a knowledge of physiological

private practice, and these were necessarily too few and too scanty in the details to be implicitly relied upon. The real question at issue, that of the reality or non-reality of syphilization, was left untouched. Malgaigne, Depaul, and others, in vain protested against the sweeping condemnation of these proposals before the truth or falsehood of the doctrine had been determined by experiment; the great influence of Ricord and his partisans prevailed, and the proposals by Auzias Turenne were unequivocally condemned. Shortly after, a strong case appeared in favour of the opponents of syphilization, in the person of a Dr. L——, who had allowed himself to be inoculated to produce syphilization, and was now covered with venereal sores. While matters thus proceeded in Paris most unfavourably for the advocates of syphilization, the question was being investigated on a large scale, and in a more complete manner, by Sperino of Turin. This physician had great advantages for the prosecution of his researches, as he was attached to the Syphilicoma, or Venereal Hospital, of the city of Turin. He had long remarked that large suppurating buboes healed more rapidly when their syphilitic character was tested according to Ricord's plan, by inoculation of the surrounding parts; and, moreover, that when the primary chancres were large and obstinate, the inguinal buboes were smaller and less freely developed. The longer the local disease lasted, the less chance there seemed to be of constitutional syphilis. Sperino made his first report on the subject to the Medico-Chirurgical Academy of Turin on the 23rd of May, 1851. In this report he gives the full details of fifty-two cases treated by him in the Syphilicoma, of that city. If Sperino was not the first to employ syphilization for the cure of venereal disease in the human subject, he at all events first performed a regular series of experiments and observations to test the truth or fallacy of Turenne's doctrines.

"The subjects of M. Sperino's experiments were fifty-two hospital patients, all prostitutes, and all suffering from aggravated forms of primary or secondary syphilis. The virus was taken from the person syphilized, or from a comrade—from the first, if possible. The inoculations were repeated once or twice a week in three or four distinct places, usually in the abdomen. The time required for the establishment of the artificial chancres was from two to three days. The effects of the second inoculations were less serious than the first, the third than the second, the fourth than the third, and so on, until the virus ceased to produce any effect whatsoever; contemporaneously with which epoch all former ulcers had healed, and buboes, recent nodular enlargement of bones, and cutaneous stains or blotches, had either disappeared altogether, or were rapidly going away."

The virus also which made no impression at that time was found to retain all its virulence when tried on an unprotected person.*

Sperino's observations were confirmed by similar results obtained by Dr. Gamberini at Bologna, and by Gulligo at Florence. The report of the Commission appointed in this case, as at Paris, was unfavourable, but it did not extend to the prohibition of further experiments, and Sperino has ever since followed up this treatment in the hospital under his charge. In 1853 he published a detailed account

* See Dr. Radcliffe's Report on Surgery: *Ranking's Abstract*, p. 324, vol. xvi.

of 96 cases of syphilization in a bulky volume of 903 pages. We presume that the 50 cases given in his former report of 1851 are included in the 96 here detailed; but as we have not seen Sperino's original work, we can only quote from Dr. Boeck's extracts. Of these 96 cases, 53 were of primary syphilis, and 43 of the constitutional disease. Fifty of the cases of primary syphilis were cured, 2 failed, and 1 was not treated by syphilization alone. Of the 43 cases of constitutional affection, 26 were treated by syphilization alone, and 17 by this method in conjunction with mercury or iodine. Twenty-five of the 26 in the first category are said to have been cured. In only 2 cases of the primary disease did any constitutional symptoms appear, and these symptoms rapidly yielded under a continuance of the syphilization. No relapse has yet taken place in any case. Many of these cases were of very severe character, and were such as were not likely to have healed spontaneously; while the numerous inoculations that were required produced no serious effects, except in one or two instances a slight tendency to form phagedænic sores.

We have placed only two of Dr. Boeck's publications at the head of this notice, and this because these two works contain the whole result of his experiences in syphilization up to the summer of 1856. Already in 1853, he published, in the seventh volume of the Norwegian Medical Journal, a brief notice of the results of a few experiments he had then made. Since that time he has closely investigated the subject in all its bearings, and has, as we see, even extended the practice to infants at the breast. The same plan of treatment is now pursued by Dr. Danielsen in the hospital at Bergen, though we believe that as yet he has published no report of his researches. We can, however, state that, on visiting this hospital in July, 1856, he assured us that he fully coincided with the views of Dr. Boeck, and that the results obtained in Bergen by syphilization were as successful as those recorded by the latter at Christiania. Dr. Boeck's position as a practitioner of eminence in that capital, and as Professor of Medicine in the Christiania University, entitle him to due consideration. His experiments, however, have been carried on in a large hospital, in the presence of intelligent colleagues, and of a large body of students; and if the results had been otherwise than as stated by Dr. Boeck, the truth of his reports would unquestionably have been challenged. As the author, in conjunction with Dr. Danielsen of Bergen, of the great Norwegian work on the 'Spedalskhed, or Norwegian Leprosy,' he has already made for himself a scientific reputation; and from his earnestness and love of truth, we feel assured that, should he discover any error in the conclusions he has drawn from his researches on syphilization, he would be the first to proclaim this to the world.

In reviewing the two works before us, we shall study brevity and concentration as much as possible, but it would be unfair to pass over anything that materially elucidates the question at issue.

That mercury has the power of driving away, or at least of allaying, venereal symptoms, both primary and secondary, few at the present day will deny; but no one who has practised much among syphilitic patients can have failed to observe how uncertain cures by this mode

of treatment frequently are. How often do we not see a venereal eruption healed to all appearance by a judicious employment of mercurials, and yet, after a short lapse of time, that the patient returns in a worse condition than heretofore. Moreover, it is a well known fact that, even after the constitutional disorder is apparently healed, the children of such parents frequently exhibit unmistakeable signs of syphilis, though the parents may have deemed themselves completely freed from the malady by repeated mercurial courses. Mercury has now for centuries held its place as an agent in the cure of syphilis, and though from time to time likely to fall into disrepute, it has always been reinstated in favour in the absence of any better means of cure. It is in England especially that it is most employed for this purpose; while on the Continent, and especially in the north of Europe, it is now less resorted to even in primary syphilis than at any other period of its career. More than 80,000 cases have now been treated on the non-mercurial plan; and the result of these observations has been to establish that syphilis is cured in a shorter time, and with less probability of inducing secondary symptoms, by the simple treatment alone. That syphilis is of an infinitely milder character in foreign countries than in England, is perhaps owing in a great measure to our prejudices regarding the regular medical and police supervision of prostitutes; but it is possible, too, that the severe cases of syphilitic caries of the bones, and the other terrible sequelæ of the disease, may be due in part to our almost universal employment of mercury in its cure.

Although mercury is perhaps our most powerful agent in combating syphilis, it is yet confessedly not to be regarded as an absolute specific; and again, it is maintained by many, and we think with great show of reason, that many of the severest forms of secondary and tertiary venereal disease are produced as much by the mercury taken for their cure as by the original malady.

"Such being the case," observes Dr. Boeck, "and our present remedies for the cure of syphilis being either insufficient or exercising an unfavourable effect upon the constitution, it appears to me that we are justified in trying a new method of treatment, which has had reported success, even though its operation may be inexplicable, and its adoption seem in contradiction to common sense. The great question, in our opinion, is, in what cases should syphilization be employed? As a prophylactic its adoption is unjustifiable, and even its discoverer now holds this opinion. Syphilization can therefore only be adopted where venereal disease already exists; but here, in my opinion, it is far from being applicable to every case. Hitherto it has been used both in primary and in secondary syphilis, but with this practice I cannot agree—I believe it to be contra-indicated in the primary forms. In ordinary non-indurated chancre, I would not practise syphilization, for there is a strong probability that, in such cases, the patient will escape the constitutional affection altogether. I do not, however, subscribe implicitly to the dogma of Ricord, that a non-indurated chancre can never give rise to constitutional symptoms, for I am quite of a contrary opinion. Among many other examples, I may refer to the case of a prostitute, Karin Ellingsdatter, who was under treatment in my division of the hospital for simple chancre, without a trace of induration. She was watched most carefully during the weeks after her admission, and constitutional symptoms of an unusually severe character showed themselves at the usual time.

I do not consider myself justified in subjecting patients to a treatment necessarily long and painful, in order to avert evil consequences which possibly never would ensue. Ricord maintains that an indurated chancre is the first symptom of constitutional syphilis. On this point, too, I cannot agree with him, and I should not deem myself justified in employing syphilization until constitutional symptoms have really shown themselves. It is no easy matter to decide upon the degree of induration which constitutes an indurated chancre. The case is widely different when constitutional symptoms have already declared themselves. Here there is no danger of introducing into the system by inoculation, a malady which before had no existence there. Whether in every case of constitutional syphilis this peculiar mode of treatment should be employed, is a question to which I shall afterwards return. I may merely observe here, that the syphilitic dyscrasis seems, by the lapse of time, to become occasionally so modified, that primary matter ceases to exercise any influence over it.

"All the cases that I have treated by syphilization have laboured under constitutional syphilis in its most varied stages and forms. Some of these cases had previously undergone every mode of treatment that science could devise, while others had had no previous treatment at all. I thought it of great importance to collect observations from both classes of cases. If syphilization is not had recourse to till all other remedies have been tried, it is difficult to form a correct estimate of its powers—for under such circumstances we hardly know what symptoms belong to syphilis, and what are to be ascribed to the medicines administered, and particularly to mercury." (p. 15.)

Not only are certain cases ill fitted for syphilization from previous mercurial treatment, but the state of health of the patient must be taken into consideration before submitting him to this prolonged and painful treatment. Dr. Boeck advises that we should not syphilize when any inflammatory diathesis exists in the system, as in such cases the artificial chancres may take on a malignant action. Habitual spirit drinkers, and persons of very weakly constitution, should not be subjected to this treatment. The bowels should be regulated, and the digestive organs should be brought into good order; but it is not necessary to enforce any strict rule of diet. In the hospitals of Bergen and Christiania, the ordinary full diet of the hospital was always allowed. With regard to obtaining the patient's consent to the treatment, no difficulty seems to be found either in the Scandinavian or the Italian hospitals. Both Sperino and Dr. Boeck mention the readiness with which patients submitted to, and even sought for, the mode of cure which they had seen to be so successful with their fellow sufferers.

Various methods of inoculating the venereal virus have been adopted by the advocates of this system. Auzias Turenne at first kept up a succession of single chancres; while Sperino made three or four separate inoculations at once, and repeated these two or three times in the week. After having in this way reached the number of twenty-four or thirty inoculations in all, he found that the chancres last produced were exceedingly small, and he then diminished the intervals, and made more inoculations at each sitting. He found that the first chancres were deeper, larger, and more inflamed than those which succeeded them; and that by diminishing the intervals and increasing the number of inoculations, the earliest chancres visibly diminished, and were less painful and inflamed. To test this still

further, Sperino ventured upon as many as sixty inoculations at once upon the same individual; but the result obtained was, that *immunity* to further inoculation set in before the syphilitic symptoms were cured, and relapses of the disease frequently ensued. He therefore returned to his former plan, and now inoculates for six to ten chancres at each sitting. While these chancres are progressing, it is neither necessary nor advisable to inoculate afresh, nor should this be done until the former chancres are developed. Should the chancres be developed too freely, and threaten to produce active inflammation, or to extend as phagedænic sores, he checks their progress by inoculating afresh at shorter intervals.

The practice of Dr. Boeck differs very little from that of Sperino. At first, afraid of producing too serious an impression on the system, Dr. Boeck inoculated for two chancres only every six days, selecting that period of time because he found from experience that it required about five days to produce induration in a chancre; although he does not, as we have already seen, consider this latter circumstance absolutely essential. Subsequently he has shortened his intervals to three days, and increased the number of inoculations to eight or ten. Less time is thus required to produce immunity, but Dr. Boeck has a wholesome distrust of those cases which are pushed too rapidly through their course of syphilization.

With regard to the most favourable points in the body for inoculation, Sperino placed his punctures on the lower part of the abdomen, while Dr. Boeck prefers inoculating on the arms and thighs. Accompanying each of his observations in the volume before us is a lithographed outline-plate of the human figure, with the points of inoculation, and the date of each; while lines drawn from the arms to the thighs, enable us to follow the transpositions of the virus from one chancre to another. By this simple figure it is easy to trace the progress of the treatment, to see the number of inoculations at each sitting, and the source from which they are derived.

After these preliminary observations, Dr. Boeck proceeds to detail at great length the particulars of twenty-one cases where syphilization was employed. The history of these cases occupies not less than 156 pages, and to each case is appended a page or two of observations on its peculiar features and on the relative effects of the treatment. We shall select two or three of these cases, abbreviating their details; and shall give a brief *résumé* of the others.

"CASE I. Admitted into the General Hospital, October 27th, 1852. A female, aged fifty-six, suffering from ecchyma syphilitica of the whole body, with syphilitic tubercles (*tubercula mucosa*) between the toes, upon the membrane covering the fauces, and at the angles of the mouth. She had been infected with syphilis by a soldier some ten or twelve years previously, but the eruption did not appear until the previous summer. Inoculation was commenced October 29th; the matter was taken from an indurated chancre on the glans penis of a sailor, who had been infected in England three weeks previously. For some time only two inoculations were made, with intervals of six days; subsequently, the inoculations were increased to six and more. The matter from the first sore was carried through a series of fourteen periods, when it no longer acted, and fresh matter was obtained from another source.

On the whole, 260 inoculations were made at 56 sittings, 38 of these had no result at all, and several more inoculations were more or less abortive. The only affection of the general health was an attack of gastric fever thirty-seven days after inoculation was commenced; it lasted for two days, and then the treatment was resumed.

"Nine days after syphilization had been first employed, she remarked that the pains in her legs were not so severe as when she entered the hospital. Thirteen days after the first inoculation, the mucous tubercles on the palate began to spread out and flatten, and two days after that they began to disappear on the back part of the palate. On the thirtieth day, fresh tubercles showed themselves on the nape of the neck, so that the former semicircle of tubercles there was converted into a perfect circle. At the same time that these tubercles appeared, the mucous tubercles of the palate began to diminish, and had entirely disappeared in forty-four days. In fifty-seven days the sores on the legs were entirely healed. About the seventy-sixth day she complained of pains in both clavicles, and in both humeri (*dolores osteocopi*) which did not cease until the hundred and twenty-seventh day. On the one hundred and thirty-third day traces of psoriasis showed themselves in the palms of both hands; and these, the last symptoms that remained, did not entirely disappear till after the lapse of two months. The patient's general health improved remarkably during her residence in the hospital, and up to the present time (August, 1856) the disease has shown no disposition to return." (p. 15.)

"CASE II. Admitted 22nd Feb., 1853. This patient was a girl with large syphilitic sores on the left thigh. Her mother had been in the hospital for constitutional syphilis in a high degree, in the year 1844, at which time the present patient, then aged six years, was also under treatment with mercury. At that time she suffered from *rosæola syphilitica*, and syphilitic ulcers in the throat. At the close of that year (1844), she was again admitted with a papular syphilitic eruption, and an affection of the throat. She was then treated with liquor bellostii and decoct. sarsæ (liquor hydrarg. nitrat.). Again, in 1845, she was a patient in the hospital, and then suffered from *lichen syphilitica*, with affection of the throat. She was treated at this time on Dzondi's plan, with mercurials. Twice since then the disease has reappeared, but has *gone away without any treatment*. The present attack has lasted for twelve months, and is described as a syphilitic tubercular affection, with *lupus serpiginosus syphiliticus*.

"The treatment by syphilization lasted for about five months, during which time 124 inoculations were practised in twenty-seven sittings. Of these 124 inoculations, 33 entirely failed, and many more were abortive. Thirty days after the first inoculation, erysipelas showed itself in the vicinity of one of the chancres, and was accompanied with sharp febrile symptoms, which lasted seven days. In two months her general appearance was greatly better than when she had entered the hospital, and the sores on the lower limbs were healing rapidly. In three months, immunity to any venereal virus that could be obtained showed itself, and the sores had entirely healed. Her general health has since continued excellent, and she has had no symptoms of a relapse. Dr. Boeck admits, that as the syphilitic tertiary symptoms had twice receded of their own accord, this case is open to objection; but one thing he observes is certain, that while the sores which had then lasted for a year, rapidly healed under syphilization, her general health was improved to a degree far beyond that which she had ever previously enjoyed." (p. 29.)

"CASE III. Admitted 21st Feb., 1853. This was a prostitute, aged twenty, suffering from *rosæola syphilitica* of the face, breast, back, and thighs, with tubercula mucosa over the inner surface of the labia majora.

"The symptoms in this case receded slowly, fresh tubercles showed them-

selves on the labia majora on the fourteenth day, and by the twenty-first day they had also invaded a considerable portion of the mucous membrane of the mouth. These appearances did not recede till after the lapse of five weeks, and about that time a papular eruption showed itself on various parts of the body. While the tubercular symptoms were receding, fresh ulcerations appeared in the fauces and on the organs of generation. Two months after syphilization had been commenced, fresh mucous tubercles showed themselves around the anus, and lasted for several weeks. A month after immunity was obtained, she was attacked with iritis, which continued for several weeks."

Dr. Boeck believes that in this case the syphilitic virus that was employed was too weak, and no fresh venereal matter could at that time be procured.

In the first and third cases mercury had never been taken; in the second case it had been employed to a considerable extent.

The fourth case is of much interest, as it seems to exhibit the influence of mercury on the system, so as to render it less susceptible of the action of syphilization.

"CASE IV. A girl, aged twenty-four, was admitted on the 10th May, 1852. She had large syphilitic tubercles on various parts of the body, ulcerated tubercles on the legs, and syphilitic affections of the bones. She was treated, first with iodide of potassium and preparations of iron, which improved her general health, but did not alter the syphilitic affection. Subsequently, inunction of mercurial ointment was carried on to complete salivation, and after that iodide of potass was given again. After five months' stay in the hospital, she left, apparently cured. A month after leaving, she returned, in nearly the same condition as at first; and after undergoing Dzondi's cure for two months, she again went out apparently well. In a very short time she came back in her present condition, and after iodine had been again tried in vain, recourse was had to syphilization. Inoculation was commenced on the 9th March, 1853, and was continued for two months, when the treatment was stopped for want of a supply of the venereal virus. Salivation by mercurial inunction was now again had recourse to, but was of no avail. Four months later, Dr Boeck was able to obtain a fresh supply of virus, and the treatment by syphilization was resumed, and was persevered in for three months longer, when complete immunity showed itself; but still the patient was not cured, for tubercular excrescences and sores still continued to appear on various parts of the body. Iodide of potassium was now again had recourse to, and, to Dr. Boeck's surprise, its beneficial effects were rapid and complete, though it had twice been tried before in vain." (p. 40.)

It is a remarkable fact, but apparently established by several observations of Dr. Boeck, that iodine is frequently of no avail before syphilization; while after that treatment, as in the present case, it will produce most marked good effects.

"CASE V. is one of psoriasis syphilitica over the whole body. The patient was for two months under treatment by mercurials after Dzondi's plan, but without the slightest amendment, and she was exceedingly weak and emaciated. Her course of treatment by syphilization lasted eight or nine months; she had not less than 683 inoculations, only 90 of which proved abortive. About a month after syphilization was commenced, the eruption diminished on the lower extremities and trunk of the body, and five months afterwards, it was confined to a small spot on the nates. This in time disappeared, the general health had greatly improved, and since then she has continued well."

It would occupy more space than can be conceded to us, were we to

attempt the analysis of the other cases in this book; all of them have evidently been carefully observed, and the symptoms recorded day by day.

We prefer to direct the reader's attention to Dr. Boeck's general *résumé* of his observations at p. 177 of the first work on our list, and with the analysis of this we shall combine such of his still more recent experiences as are contained in the second work, which, having been published this year (1856), may be said to contain the latest researches. In these general observations, Dr. Boeck tells us that he desires as much as possible to confine himself to simple facts, and to exclude theory. The observations having been made in a large hospital, under the eyes of his professional brethren, and of numerous students, he only claims for them the merit of accuracy of detail, without insisting that he is perfectly correct in his interpretation of the phenomena recorded. The local symptoms produced by inoculation first claim our attention. Much difference has been observed in different individuals, and even in the same persons at different periods of the treatment, with regard to the space of time required for the maturation of the pustule. This in part, no doubt, depends upon the idiosyncrasy or state of health of the patient, but Dr. Boeck thinks that it is still more influenced by previous mercurial treatment. If mercury has been given, the development of the pustule and chancre is almost always slow. In general, the pustule produced by inoculation of the venereal virus has a more or less intense areola, and a depression in the centre like that of small-pox, with a black central point. When the pustule bursts, a regular chancre is soon formed, often of considerable size and depth,—especially after the first inoculations. As syphilization advances, these chancres become progressively smaller and shallower, and still later the pustules become exceedingly small, and have little or no areola. Inoculation, Dr. Boeck thinks, should be commenced on the arms, as the chancres formed there rarely become so large or so deep as those upon the thighs. If, as has happened in three or four instances, febrile reaction shows itself during the treatment, the artificial chancres generally put on a more threatening aspect. (May not the phagedænic tendency of the sores be the cause, and not the consequence, of the fever?) The cicatrices left by the artificial sores are remarkably small, and after some time leave very slight traces of their existence.

Syphilitic matter sent by Retzius from Stockholm, and by Sperino from Turin, has seldom proved efficacious in the Christiania Hospital.

The conclusions drawn by Dr. Boeck from the eighty-four cases of syphilization which he has treated up to March, 1856, are as follows:—

I. That in all cases, without exception, immunity to the venereal virus is obtained sooner or later by inoculation of this poison.

II. That the symptoms of syphilis present at the commencement of syphilization disappear during the employment of this mode of treatment.

III. That the general health does not suffer in the least from syphilization—on the contrary, if the patient has been in weak health

before inoculation, he most materially improves in strength and appearance during the process.

We return to the first of these propositions. It seems indeed a bold assertion to maintain that one of the most intense animal poisons can be annihilated, as it were, by the introduction of fresh poison into the system, until at length the venereal virus has no more effect on the patient than a drop of water. That such immunity really does take place, we must concede as an undoubted fact. The unanimous testimony of Boeck, of Danielsen, of Sperino, and of Auzias Turenne, of Carlsson, and of Stenberg in Stockholm, all concur on this point; nor could we anywhere obtain a denial of this fact, either from the patients or from Dr. Boeck's colleagues, when we visited Christiania this past summer.

The explanation of this fact, however, has not as yet been given, and Dr. Boeck wisely abstains from indulging in any crude theories on the subject. He does not think it possible that a saturation of the system with syphilis can here take place, as in that case the symptoms would surely get worse instead of better; and if relapses occurred, as detailed in cases 13, 16, and 18, the return of the disease would be more severe than the former constitutional affection. This was so far from being the case, that these symptoms of relapse were remarkable for their mild character, and indeed seemed to hold the same place towards constitutional syphilis as varioloid disease does to small-pox. In most of the cases, the artificial chancres became successively less and less, but there were several exceptions to this rule, and the question has been raised whether the chancre matter has always the same degree of virulence. Dr. Boeck is of opinion that it gradually becomes weakened, for he has often found that matter taken from a single primary source becomes gradually less and less effectual. Still there are numerous exceptions to this rule; and in some of the recorded cases we remark, that for several inoculation periods the chancres produced were very small, and then suddenly appeared to acquire a greater degree of activity, so that they became as large or larger than those usually produced by the first inoculations.

Dr. Boeck believes that syphilitic matter may vary in its strength according to the degree of development of the chancre from which it is taken. We must also in this regard take into consideration the idiosyncrasies of the individual, and the changes that may take place in his constitution during the course of the treatment. As a proof of the gradual weakening of the syphilitic virus, Dr. Boeck notices the fact, that when, after a long course of inoculation of matter, taken each time from the most recent pustules, he found the inoculations beginning to fail, he has repeatedly gone back to some of the older chancres, which were still secreting pus, and inoculated from these, and has found that the virus from this source produced complete chancres of a more active character.

Dr. Boeck is of opinion that the virulence of syphilis is rapidly diminishing in Norway. He has found the greatest difficulty in obtaining fresh chancre matter of sufficient power; indeed his inoculations have been mainly carried on by matter primarily taken from chancres in-

curred in England or in Germany. For the last six years he has been in the habit of inoculating from every sore of suspicious character that came under his observation in the hospital; but twice during that period was he unable to find, for more than twelve months, a single inoculable chancre of native origin. He suggests, therefore, that a syphilitic sore may possibly infect *in coitu*, and yet that the virus from it may be of no effect when inoculated artificially. We confess that we have strong doubts of the correctness of this opinion, but further observation alone can decide the question. The best virus for inoculation he generally found was that where the chancres were accompanied with suppurating buboes. The cause of the decrease of virulence of syphilis in Norway is, in our author's opinion, chiefly to be ascribed to the careful and regular inspection of the prostitutes in the towns of Norway, so that all fresh cases of syphilis are immediately subjected to treatment. If this is really the case, there is no danger of syphilis becoming extinct in this favoured and free land of ours, where the interference of sanitary regulations with prostitution is scouted alike by saint and sinner.

But it seems that there are likewise circumstances existing in Norway which may prevent the much-to-be-desired extinction of syphilis in that country. What these may be we shall present to our readers in Dr. Boeck's own words, perceiving that he details the observed facts merely as hints and guides to further investigations:

"When, in the course of my earlier investigations, I could no longer get the virus to act on the system, and no fresh virus could be procured, it occurred to me that perhaps I might regenerate the poison by passing it through the system of another individual. Auzias Turenne's experiments had shown that the virus from aborted pustules, in those who were fully syphilized, was yet capable of producing characteristic chancres in persons who had not been subjected to that treatment; but it remained to be proved that the virus from these chancres was more powerful than that which produced them. To ascertain whether this was the case or not, I transferred virus from No. 1 and from No. 12 to a person labouring under constitutional syphilis, but who had not been previously inoculated. The characteristic pustules and chancres were here produced, and from thence I transferred the virus back to No. 1, when it likewise proved efficacious for several periods in succession. To continue the experiment, I passed the virus thus regenerated through two other individuals, and when returned to No. 1 it again acted as on the previous occasion." (p. 190.)

Dr. Boeck tried this experiment on several occasions in other cases, and with the like result; but in three instances it failed, and he thinks that the virus was too much weakened here before the transferring it to others was attempted.

The contagion or non-contagion of secondary syphilis has been the subject of keen controversy. Although not bearing directly on the question of syphilization, it may be interesting to our readers to know the opinions of Dr. Boeck on this question:

"No one denies," says he, "that a chancre existing after constitutional symptoms have developed themselves can produce inoculable virus. I believe, however, that when the virus has resided longer in the system, it undergoes such changes that inoculation from it no longer succeeds, and perhaps this will explain the difference of opinion regarding the contagion of secondary syphilis." (p. 193.)

Dr. Boeck has been led to believe that great variety exists in the strength of the venereal virus. Some virus from a chancre incurred in England seemed to be of great activity, producing large and deep sores, but its efficacy did not continue nearly so long as the virus from a chancre contracted in Hamburg, which, however, never exhibited the actively destructive properties of the former. It is possible that this may depend on the greater or less dilution of the poison with other fluids, or upon its being respectively of a more serous or a more purulent character. The observations of Mr. Henry Lee in the October (1856) number of this Journal, throwsome light upon this question, and we have no doubt that they will be read with interest by Dr. Boeck and his colleagues.

With reference to the immunity finally obtained by inoculation, Dr. Boeck says:

"The time that is required to produce immunity depends not only on the variable strength of the virus—upon the rapidity or otherwise with which the inoculations succeed each other, and upon the number of the chancres—but also upon the idiosyncrasy of the individual. I have already stated that immunity in one case was obtained after seventy-one chancres, but I have also shown that the virus employed on this occasion was remarkably weak. The attaining to immunity depends on the length of the intervals between each inoculation—the more frequent the inoculation the more rapidly does immunity ensue. If there were sufficient virus to be obtained, we might, if we chose, inoculate every day; but if, as is generally the rule, we keep to obtaining the virus from the most recent inoculation, we cannot easily do this. From my own experience, I would say that the matter contained in a pustule of only one day's growth is generally capable of being inoculated; but I have also seen that pustules of three days' growth produced no effect; while three days later, the matter taken from them was decidedly contagious." (p. 196.)

Granting, then, that immunity to the syphilitic virus is really produced, the question immediately suggests itself, how long does this immunity last? Will it be for life, as in the case of small-pox, or will it endure only for a short time? And again, are we to believe that it is only the old constitutional poison that is eradicated by the inoculations, so that when all is finished, and the constitutional symptoms have entirely gone, the patient is exactly in the condition of an individual who has never had syphilis? We should ourselves think this cannot be the case, or the later inoculations, undertaken when the constitutional disease is fairly subdued, ought to affect the skin as they would the skin of a perfectly healthy individual. Dr. Boeck is evidently of opinion that those persons who have once reached perfect immunity to inoculation, are probably, for all the rest of their lives, insured against contracting syphilis again; but he confesses that he has not experimented to determine this question:

"I am much inclined to believe," says he, "that this is really the case, but to prove it is not so easy, for according to my views, this question cannot be determined by artificial inoculation. I have not considered myself justified in putting those healed by syphilization to the proof of inoculation after some time had elapsed since the cure, as I thought it possible that such inoculation might produce constitutional symptoms, as I believe that syphilization destroys the syphilitic poison in the system. Ricord's dogma, that an individual can only once in his life be affected with constitutional syphilis, may perhaps be

erroneous, and the patient might then be in the position of a previously healthy person newly inoculated with syphilis. I have therefore always abstained from testing by inoculation those who had not previously been treated with mercury. Such, however, has not been my practice where the patients had undergone a mercurial course or courses before they came under our care. In my former work" (the first on our list) "I had remarked that, where mercury had been given before syphilization, we are never certain that relapses may not occur, although these last are of small importance in comparison to the previous constitutional affection. When in such cases I employed syphilization, and obtained a positive result, I did not consider that this proved the immunity before obtained to be of short duration, for this immunity was not the consequence of the entire destruction of the syphilitic poison in the system—as this had been hindered, if I may so speak, by the combination of the syphilitic with the mercurial poison.

"It has, moreover, often occurred to me that, when I have syphilized persons who had previously gone through a course of mercury, and when the powers of the virus began to fail, I obtained large pustules and chancres after the administration of iodine." (Syphilization of Children, p. 11.)

We now come to consider the second of Dr. Boeck's propositions—viz.: "That the symptoms of syphilis present at the commencement of syphilization, disappear during the employment of this mode of treatment." We think this cannot be denied; it is a fact proved now by hundreds of observations made by men worthy of all credit. In constitutional syphilis, where no mercury has previously been given, the cases have regularly progressed towards a complete cure under syphilization. Of 42 cases of constitutional syphilis, where no mercury had previously been used, *not one* had exhibited any relapse to the commencement of 1856. and many of these had been for three years and more without requiring any treatment whatsoever. Of the 21 cases recorded in Dr. Boeck's first work, 6 had been treated without mercury, and in all of these syphilization dispersed the symptoms, which have never since returned. The average duration of the treatment in these 6 cases was six months and two days; the average number of chancres was three hundred and twenty-two.

A second class of cases out of the 21 recorded in Dr. Boeck's first work, were those in which the constitutional symptoms were principally confined to the skin and mucous membranes, but all had taken more or less mercury. The average duration of treatment in these cases was six months and twenty-four days; the average number of chancres was four hundred and thirty-two. It must not be supposed that all these were fully developed chancres; on the contrary, two-thirds of the number at least were very small and transient. Two of these cases, Nos. V. and VII., were remarkably susceptible of the venereal poison, and consequently a large number of chancres was rapidly formed; and it is remarkable that these were the only two out of the five who had *no* relapses.

In the third category, Dr. Boeck includes those individuals who laboured under very inveterate forms of constitutional syphilis. The 7 cases belonging to this class had all had mercury, and some had been repeatedly subjected to mercurial treatment. The average duration of treatment was seven months and twenty-four days; the average of chancres, five hundred and seventy.

The increase in both of the last categories of cases in the number of chancres, and in the length of time required to complete the cure, is ascribed by Dr. Boeck to the previous administration of mercury. It is, however, probable, as he observes, that another circumstance may have retarded the cure—viz., that the syphilitic virus may have undergone a material change during the many years it had been resident in the system. The more inveterate, and especially the tuberculo-serpiginous, forms, were found to be extremely rebellious to treatment, and some of them—as, for example, Nos. IV. and XII.—were not cured when immunity was reached. It was necessary then to have recourse to iodine, upon the exhibition of which all symptoms rapidly disappeared, though previous to syphilization both mercury and iodine had proved inefficacious.

In one case of inveterate pains in the bones, syphilization was tried in vain. The patient was five months and thirteen days under treatment, and had three hundred and forty-six chancres, without the slightest benefit. Upon this case Dr. Boeck remarks—

“This unfavourable result may depend upon two circumstances. The syphilitic virus may have become, in the lapse of time, so modified in the system, that it can no longer be regarded as the same poison which produced the primary and secondary symptoms. It was here more altered than in the cases belonging to the third category, for in these the change had not proceeded so far as to prevent them from being susceptible to a certain degree of the influence of inoculation. This idea does not appear to me so improbable, if we take into consideration the peculiar properties of this poison, and compare the possibility of inoculating it in the primary and secondary forms, with the difficulty of transplanting it in more advanced cases. To go still further, let us suppose that the immunity and the cures obtained by syphilization depend upon an isopathic operation of the syphilitic virus, so we may naturally expect that the further we recede from the first and earliest introduction of the poison into the system, the less powerfully will primary virus operate on the disease, and that at length the virus becomes so changed in character, that it is no longer capable of being acted upon by inoculation. We have seen that the most recent constitutional affections require the shortest time for their cure, and that no relapses have occurred where no previous treatment had been employed. Where mercury had been previously given, the cases were almost always more obstinate, and the tendency to relapse occasionally manifested itself. Still, among the inveterate cases, we met with one or two where no mercury had previously been given, and yet they proved to be extremely obstinate. I suspect, therefore, that here some other obstacle besides the previous use of mercury has existed, and I believe this to be the change that the virus undergoes by long residence in the constitution.” (p. 201.)

Dr. Boeck suspects that in those very obstinate cases a union of the syphilitic with the mercurial poison has taken place. In most instances this union seems to be dissolved by syphilization, and then iodine, which had before been ineffectual against the united poisons, acts readily on the mercury, and eradicates it from the system. In No. VII., however, the skin disease healed under syphilization, but the pains in the bones continued unaltered till they were cured by iodine. That affections of the bones may, however, ensue from syphilis alone, is proved by No. I., where they rapidly yielded to syphilization, while in Nos. VII. and XI. iodine was required to complete the cure;

for in both these cases mercury had previously been given. Mercury alone, observes Dr. Boeck, will not produce the peculiar affections of the bones; the most profuse salivations in other diseases have not been followed by affections of this kind.

Dr. Boeck then proceeds to consider the indications for treatment by syphilization. During the two years that have elapsed since the publication of the work first on our list, he has had sixty-three individuals under his care for constitutional syphilis, and of these thirty-six had never taken mercury. Whenever mercury had been previously given, as in the remaining twenty-seven cases, he has invariably found the cure more difficult, and in some cases impossible without the aid of iodine, the action of which he believes to be essentially anti-mercurial.

The relative merits of the two methods of treatment—viz., of that by mercury, according to established rule; and secondly, by syphilization—are next discussed by our author. Syphilis has been treated by mercury for centuries, and immense experience of its action has been obtained; but this experience has likewise made us acquainted with its deficiencies. The tendency of the disease to relapse under this treatment is acknowledged by all. Some individuals, indeed, when treated for constitutional syphilis by mercury, have been to all appearance cured, and have remained so for years; and then affections of the bones, swelling of the testicles, and serpiginous tubercles of the skin, have shown themselves. Others continue healthy during their lives; but their children, though born several years after the mercurial course, may exhibit unmistakable signs of syphilis in its various tertiary forms. Where mercury has not been previously employed, Dr. Boeck is decidedly in favour of syphilization; for as far as can be ascertained from the 42 cases of this character that have been subjected to the treatment, no single relapse has occurred up to the present period. We confess that this is a strong argument in favour of syphilization, for it is precisely in the matter of the tendency to relapse that the inferiority of mercury is shown.

Another objection to syphilization is the length of time required for the treatment. In the Christiania Hospital, the average duration of the mercurial cure is three months and a half, while syphilization averages a full half year. If, however, the latter be not liable to relapse—at least in non-mercurialized cases—it is infinitely preferable, even if it required a much longer period. To try the effects of mercury first, and to have recourse to syphilization only when the former had failed, would plainly be erroneous practice, for the administration of mercury has been always found to retard the operation of treatment by inoculation.

Is it possible, then, to syphilize, to produce immunity, and to heal permanently, the constitutional disease, with matter taken from one source alone? Dr. Boeck doubts much if such be the case. He has met with instances where complete immunity existed to the matter taken from one source; but upon obtaining fresh virus from other individuals, the inoculation succeeded perfectly again. However, in some instances—as in Cases I., II., and III.—he has been able to effect a complete and permanent cure with matter from one source alone.

This leads us to another question—viz., whether it is necessary to obtain absolute immunity when the syphilitic phenomena have disappeared in the course of inoculation. In those cases where mercury has not been previously employed, he does not believe that absolute immunity is always requisite; but where mercury has formed the staple treatment beforehand, he would inoculate so long as any matter could be found to take. Dr. Boeck does not agree with Auzias Turenne as to the identity of syphilis and blennorrhagia or gonorrhœa. A discharge similar to that of gonorrhœa may, however, result from a chancre in the urethra; but even here, though syphilization would probably cure, it would not be admissible, for the affection would be only of primary character. Immunity to the venereal poison does not confer the slightest protection against gonorrhœa, for one of the patients (No. VII.) contracted a severe gonorrhœa immediately after leaving the hospital.

We have now arrived at Dr. Boeck's third and last proposition—viz., "That the general health does not suffer in the least during syphilization—on the contrary, the health improves remarkably in those instances where it had been impaired before commencing the treatment."

Singular as this may seem, it is most certainly true, as we have ascertained from personal observation recently in the Christiania and Bergen hospitals. We conversed with several of the patients, and questioned them upon this point, and all declared that their general health had greatly improved under the treatment. Full diet was allowed, and it may be suggested that this contributed much to the improvement observed, as it is perhaps of a more nourishing character than the ordinary diet of the Norwegian labourer. The sensations of weariness, the sleeplessness, and the pains resembling rheumatism, rapidly disappeared, and the aspect of many of the patients presented an appearance of health such as could not have been expected. Moreover, the patients, when cured, could at once return to their ordinary occupations—they could expose themselves to the vicissitudes of the climate, to wet and to cold, without the fear of evil consequences, such as might justly be apprehended in those who had undergone a mercurial course.

With regard to the danger of the chancres assuming a phagedænic character, Dr. Boeck has indeed occasionally observed such a tendency, but believes that it arose in a great measure from employing venereal matter of too active a character at the onset. But the appearance of phagedænic sores did not prevent him from continuing the treatment—on the contrary, he regarded such symptoms as an indication for persevering with inoculation; and the result justified this proceeding. Perhaps the case of Dr. L——, which in the French Academy of Medicine was so prominently brought forward to prove the dangers of syphilization, was one of this kind. Very active matter had been employed at first, and phagedænic chancres were produced, but at this point, unfortunately, inoculation was stopped, and the disease continued to spread. Dr. Boeck's experience tells him that the remedy is at hand in a bold perseverance in inoculation. Of late, he

has had no phagedænic chancres, as he has learnt to avoid matter of too active a character in the first inoculations.

Dr. Boeck, in the second work on our list, gives three cases where he has successfully syphilized children under two years of age, labouring under tertiary symptoms.

In another large work (on diseases of the skin), of which the first number only has appeared, he has given, in concert with Dr. Danielsen of Bergen, a long account in French and in Danish, of his experiences in syphilization. We intend to notice this work on its completion; suffice it to say that the execution of the plates reflects great credit on the artist.

We have now endeavoured to lay before our readers as concisely as possible the contents of a work from the pen of a man of high standing in the scientific world. We are well aware that position alone does not secure us from error. Professors of universities have more than once accepted the fallacies of homœopathy, mesmerism, and other pseudo sciences. All that the advocates of syphilization demand is a fair trial of the system; and without the aid of experience we can hardly venture to pronounce against it. In this country, from the almost universal employment of mercury in venereal disease, it would be difficult to meet with an individual labouring under constitutional syphilis, who had not undergone at least one mercurial course. Mercury is now but little employed in Scandinavia in the treatment of primary syphilis, so that in those countries more favourable opportunities will occur. Is our obstinate adherence to mercury in the treatment of this disease perfectly justifiable? and may we not really have laid ourselves open to the severe strictures recently passed by Dr. Bennett of Edinburgh, on the passion for mercurial treatment that prevails on this side of the Tweed?

At all events, we think that the advocates of syphilization have established a claim on the profession to a fair trial of their system. It is evident that its employment is not fraught with danger, as is the case with so many remedies proposed from time to time; and the investigation of the subject seems to open up a new field for the further study of one of the most malignant and most lasting and destructive poisons that affect the human frame.

REVIEW XIV.

Ocular Spectres and Structures, as Mutual Exponents. A Treatise. Eustachian Tube—why Opened in Deglutition. A Paper. By JAMES JAGO, A.B. Cantab., M.B. Oxon., Physician to the Royal Cornwall Infirmary, and the Physician to the Truro Dispensary.—London, 1856. pp. 110.

THE volume before us bears evidence of being the production of an original thinker and conscientious worker, and as such has claims upon our consideration. The originality, we may remark, is not confined to the thought, but extends to the style, reminding us of that of the author of 'Sartor Resartus.' From the first page to the last, the

volume is mainly composed of the details of careful experiments, repeated, we imagine, many times, and of the inferences drawn from those experiments, which inferences are not unfrequently at variance with those deduced by the highest authorities.

As may be gathered from the title, the special object that Dr. Jago has had in view is, a methodical elimination of what he terms *ocular spectres* from one another. Some might take exception to the term, but that is of little consequence. The ground he considers untrodden; for though isolated "spectres" have been traced to their sources, he affirms that no one has hitherto devised and practised any plans for exploring the visual organ, capable of leading to the detection of the respective causes of these optical illusions.

To this task the author has applied himself with zeal, and his labours have not been barren. He finds—

"That in the transparent ocular media, structural spectres are created, which have begotten erroneous opinions upon these media; and that certain anomalies incidental to the use of the organ of sight, which have been regarded as evincing a capricious conduct in the ætina, optic nerve, or brain, are purely mechanical in their origin." (p. 2.)

The first chapter is introductory; the second fairly takes up the subject with "optical effects of eyelashes, eyelids, and conjunctival fluids," in which are pointed out a number of phenomena as they appear in divergent and convergent light. The third chapter treats of the optical structure of the iris and of the crystalline lens; and the following observations, deduced from personal experiment, possess interest:

"I fall upon many objects fixed between the iris and the vitreous humour. These objects must therefore be connected with the crystalline lens.

"In my left eye I could enumerate from thirty to twice as many (or three times, for aught I know, if the pupil were dilated to the utmost) small objects resident in this region; in my right eye they are not so numerous, though it contains the largest examples. They are all either exactly round, or slightly oval. In divergent light they may be seen to have each a white centre, of the brightness of the ground-light used—except a few, in which the central luminosity is brighter and proportionally larger—within a wide black ring (this ring in the greatest cases shows coloured indications, if not a sub-annular series), which is again within an alternation of fringes. In strong light I have counted in a large example full ten such alternations. In convergent light they all present a small black spot within two or three fringes of either kind; and when the point of decussation is passed through the space occupied by these bodies, the few excepted will be dilated and dissolved in light, and all the others in shade. Hence the few are transparent, and the many opaque.

"The opaque bodies, when tested as to depth in the eye, are found to be many of them shallower than others, through a difference fully equal to what I should imagine correspondent to the whole thickness of the lens. It is certain, therefore, that those bodies are scattered throughout the lens; and it is probable that examples are located on the surface of that substance. Whether they are earthy concretions, any foreign bodies the accident of years, or a normal deposit in the lens, I am unable to affirm. I am, however, pretty well satisfied, from my remembrance of the uneven cloudiness in a puncture, that there must have been opacities in my crystalline lenses when I first explored my eyes with divergent light, though I had then my attention absorbed with another part of the eye. The two adjoined transparent ones which I am going

to speak of, attracted my particular notice by their peculiar aspect and situation in a puncture, at the very beginning of my attempts of this sort of ocular examination. The bodies now expatiated on do not damage usual vision in any appreciable manner, and I should presume that no eyes are without such. The opaque ones, in the average run, do not exceed in diameter the breadth of a filament of the vitreous humour, and the transparent ones do not surpass this standard in size. The extreme examples of the opaque kind may present shadows of three or four times the average measurement.

"The transparent couple just now singled out are as near the cornea as the nearest of the opaque ones. There is a group of four of like kind in my right eye, as remote from the cornea as the deepest opaque one." (p. 19.)

"But not only are the objects fixed by the crystalline lens visible, but the 'stelliform' structure of the lens itself. In either eye, in divergent light, I find nearly a dozen and a half, with about two-thirds of the number more strongly marked than the remainder, of strongly luminous, nearly white lines, issuing from a like spot in or near the centre of the pupil, and going towards its circumference in a slightly crooked or undulating manner; thus radiating, as it were, to a little beyond the margin of the pupil. The figures in my two eyes do not precisely resemble each other." (p. 20.)

The structure of the vitreous body has occupied the attention of many able microscopists. Hannover, Virchow, Bowman, and Külliker, for instance, have investigated it carefully. Dr. Jago, however, takes exception to the conclusions at which they have arrived, saying, "It is, I think, impossible to doubt that the web described in this chapter clears up the slender results they have obtained." This is the description of the web in question:

"From innumerable points of the wall of the posterior chamber of the eye, as far as the hyaloid membrane extends—though in no instance from the remaining part formed by a portion of the capsule of the crystalline lens—there spring fine beaded threads or fibres, consisting of rows of transparent globular and equal (or nearly so) cells, of less specific gravity than the fluid which fills the chamber. These threads quickly unite in pairs (or occasionally otherwise); single (or a less number of) threads proceed from the knots thus made to join again other threads as before, from which knots again in diminished number of threads, the process is repeated, and so on. Thus, a $\frac{1}{2}$, irregular, sometimes decussating network, is woven from the hyaloid membrane, beginning with very small meshes, and extending into the interior of the chamber; but not so far into the chamber as to occupy its middle portion. The network is completed anteriorly by being woven from the surrounding part of the hyaloid, and threads prolonged from more distant portions across the back of the crystalline lens, so as to float freely over its capsule." (p. 25.)

The observations upon *muscæ volitantes*, though very confident, will, we suspect, not satisfy all those who have investigated the subject: we fancy that Sir David Brewster will hold his own upon that question, and upon some others mooted in this book.

Dr. Jago is especially sceptical as to the possibility of *muscæ volitantes* becoming visible to another person by aid of the ophthalmoscope. He more than hints that some of the ophthalmoscopists who have recently described the marvellous "shreds and flakes" they have seen in patient's eyes, have unwittingly written down the wonders of their own visual organs. They have assigned to others notes which properly belonged to themselves.

"Filaments and their individual beads of the vitreous humour, small objects

in, and even the stelliform figure of the crystalline lens of the examining eye, have all been imagined to be things in the examined eye." (p. 42.)

We will not dispute the *possibility* of such confusion of ownership, when inexperienced persons are using the ophthalmoscope, but with skilful observers we doubt the probability. We suspect that the ophthalmoscope has not become familiar to Dr. Jago. When it has (and so acute an observer is not likely to neglect it), we believe that he will admit abnormal conditions of the vitreous humour which at present he rejects, and will promote the degraded muscæ to the position assigned to them by observers not inferior in reputation to himself.

A considerable portion of the work is devoted to the consideration of the optical anatomy of the retina, many ingenious experiments being detailed, and very decided opinions being expressed adverse to Sir David Brewster, Purkinje, and others. Those gentlemen are, however, perfectly well able to support their own views, and we have no space to discuss controversial points which are at present open questions. We have no doubt that if Dr. Jago be right, and these other observers wrong, full justice will be done to this earnest and confident labourer in the field of physiological inquiry. From amongst the many subjects mooted, we may select some interesting observations upon the *images of objects which press upon the retina through the coats of the eye*—a class of illusions familiar to all. Concerning them, Dr. Jago says:

"We gather from the series of facts recorded that it is not, or at any rate scarcely at all, by immediate pressure upon the retina that the sensations above implied are created. It is where the portion of the globe which has been thus flattened or hollowed towards the orbit, passes into the remainder, that preserves the globular form—that is, where the retina is bent towards the vitreous humour at an angle, as if to make a fold or crease on that side, from which, of course, will radiate perpendicularly short folds. This fact would seem to indicate that it is only by crowding into closer space the elements of the internal (at all events of an inner) surface of the retina that sensations are begotten, for if crowding together those on the outer surface would produce this effect, we should have the brightness at the bottom of a hollow or depression." (p. 63.)

The second portion of this volume is devoted to a disquisition upon "The Eustachian Tube—why is it Opened in Deglutition?" On this question Dr. Jago breaks a lance with Mr. Toynbee, who, it is well known, advocated the views that the guttural orifice of the Eustachian tube is closed, except during the act of swallowing or of violent expiration, and that it is essential to a perfect organ of hearing that the drum be a shut chamber, as the existence of any outlet would allow of the escape of sonorous vibrations, instead of their being concentrated upon the membrana fenestræ rotundæ. He also showed that the sonorous vibrations pass from the membrana tympani to the labyrinth by means of the air in the tympanic cavity, and not through the chain of ossicles.

Dr. Jago, whilst agreeing with the first of these propositions, is opposed to the second. For the sake of clearness, we will briefly take each proposition seriatim. 1st. The closure of the Eustachian tube, except during the act of deglutition, can be proved by experiment.

To those accustomed to descend in the diving bell, it is well known that the unpleasant sensation in the ears, amounting sometimes to positive pain, is capable of instant removal by the act of swallowing, during which act, the condensed air being allowed to enter the tympanum and come in contact with the membrana tympani, the pressure on its outer surface is relieved by being counterbalanced. Again, if an attempt be made to swallow while the nostrils are closed by the finger and thumb, a sensation of fulness and pressure is experienced in the tympanic cavity, in consequence of air being forced during the act of deglutition through the open tube into the tympanum; and this sensation continues until, by another act of swallowing, the tube is reopened, and the confined air escapes into the fauces.

2nd. Dr. Jago is of opinion that the advantage derivable from the closed condition of the Eustachian tube consists in the exclusion from it, and consequently from the tympanic cavity, of the sound of the speaker's voice, and of the air in respiration, deglutition, &c. This, so far as we can learn, is the only novel fact that Dr. Jago has to offer on this subject; and it may doubtless be considered one of the reasons why the Eustachian tube is usually closed. Mr. Toynbee has shown, in a paper published in this Journal (Jan., 1853), that the main object of the chain of ossicles is, not to conduct the sonorous undulations to the labyrinth, but to act as the analogue of the iris in the eye. We believe that the sonorous undulations are conveyed to the fenestra rotunda by the air in the tympanic cavity, and he thus accounts for the continuance of the hearing power after the membrana tympani and the malleus have been destroyed.

Whilst expressing our approbation of the diligence and ingenuity displayed by Dr. Jago, we cannot consider the work as free from blemish. One especial fault is a want of clearness of style, so that it is sometimes exceedingly difficult to discover the conclusions to which the author wishes to lead the reader. Experiment after experiment is detailed with exceeding minuteness, but the point to be established is not easily ascertained.

Then, again, we would have felt greater confidence in the work had (the author must excuse our saying so) it been free from egotism; this may have arisen inadvertently, but the impression forces itself upon the reader's mind, that due weight is not attached to others, at least equals in skill and in experience to Dr. Jago.

Nevertheless the book is highly meritorious; and as we scanned the minute details of the trying experiments upon his own eyes performed by the author, the fate of Plateau presented itself to our mind. Like Dr. Jago, he devoted himself to investigations which formed the basis of his work, '*Sur quelques Propriétés des Impressions produites par la Lumière sur l'organe de la Vue*;' but, in the words of Rodenbach, "*Malheureusement! ses travaux persévérants sur la lumière lui ont fait perdre l'organe de la vue.*" We trust that neither Dr. Jago nor any of his readers who may be tempted to repeat his experiments will be visited with so great a calamity. Let them beware, however, or they may, by over diligence, earn the sad distinction of a place in the roll of the martyrs of science.

PART SECOND.

Bibliographical Record.

ART. I.—*The Principles of Surgery.* By JAMES SYME, Professor of Clinical Surgery in the University of Edinburgh. Fourth Edition. —London, 1856. pp. 486.

THE distinguished author of the work before us aims by it to elucidate the principles which guide his practice, and are taught in his lectures. "They cannot," he adds, "now lay any claim to novelty." He does not present it as a comprehensive system of surgery, which it is not, but rather as a terse expression of the leading principles which ought to direct the practice of the surgical art; together with as sparing an admission of details as was consistent with such a manner of treating the subject.

Accordingly, although not less than fourteen years have passed away since the last edition appeared, very slight alterations can be noted in the present volume. Modifications of the author's views can be occasionally traced, in the change of form which a sentence has undergone, or in the addition of three or four lines here, or a similar omission there. With these and a few other exceptions, the changes consist chiefly in the removal of all the engravings and woodcuts, so that the bulk of the volume is slightly reduced.

Some of those topics which, at the present moment, excite more than ordinary interest, have received additional notice in the volume, and such shall be briefly indicated here.

The subject of compression in popliteal aneurism is introduced; and a few lines are devoted to its consideration, of which the following is the summary:

"On the whole, it would seem that the ligature is the quickest, easiest, most certain, and least painful means of remedy, while compression affords a useful substitute when circumstances prevent the operation being performed, with due attention to the circumstances requisite for its safety." (p. 99.)

The author's own method of amputating at the ankle-joint is described in detail at p. 146.

In the former editions, the flap amputation was recommended as best adapted in all cases for the thigh, without exception. In relation to this we now find:

"The unqualified preference for the flap method in amputating the thigh, which I formerly expressed, has been considerably modified through the ex-

perience of more extended observation. I still think that when the limb requires removal at the middle or any higher point of the thigh bone, the operation should be performed by the formation of two flaps, one being anterior, and the other posterior. But when circumstances permit amputation at the lower third of the limb, and especially if it be muscular, I am fully satisfied that great advantage results from operating by circular incision; or, in other words, by providing a covering of integument for the bone, instead of the muscular cushion, which in this situation is so apt to retract, and leave it exposed." (p. 149.)

We are compelled to express our surprise that Mr. Syme still views with disfavour the method of treating fractures by the starch bandage, of which he says:—"There seems great reason to question its superiority over that previously in use." (p. 156.) For several years past it has stood the test of experience in London, and is regarded by those who have tried it as a valuable adjunct to other means, although undoubtedly it does not possess any claim to supersede the numerous other appliances available in the treatment of fracture.

On the subject of excision of joints, the following passage from the last edition remains unaltered in the present:

"As to the joints which may be subjected to this operation, it is evident that the extent to which the acetabulum is almost always affected in the hip disease, forbids any attempt at excision. Though experience has not yet fully decided whether the limbs that might be preserved by cutting out the knee and ankle-joints would be preferable to the artificial substitutes which may be worn in their stead, it seems pretty well ascertained that they would not." (p. 228.)

English practice appears to be confirming the correctness of these remarks, as far as they relate to the hip-joint; but not so as regards the knee-joint, which is now excised with certainly successful results.

The result of recent experience has led to the following observation on caries of the shoulder-joint:

"It should be known that this joint is remarkably distinguished by its liability to suffer from disease in one of the bones, leaving it, while the other remains free from the same derangement; so that the head of the humerus may suffer from absorption and caries, while the glenoid cavity is no otherwise changed than by the removal of its cartilage." (p. 231.)

A suggestion for the treatment of obstinate ganglia extending from above the wrist into the palm, is new. The author had lost a patient from constitutional disturbance excited by long suppuration from such an one opened in the usual manner, and has since treated the affection with more success by the following means:

"The easiest mode of operation is to puncture the swelling a little above or below the annular ligament, then introduce a blunt-pointed curved bistoury under the arch, and, lastly, divide it, together with the superjacent integuments. Light and superficial dressings are sufficient in the first instance; and if the swelling does not speedily subside, one or two blisters may be applied." (p. 250.)

The author's perineal operation for stricture is fully described in pp. 338-40. A few additional remarks appear on the practice of lithotrity, on lithotomy, and on the administration of mercurials in syphilis, in that portion of the work which relates to the genito-

urinary organs. Besides these, there are, we believe, no alterations or additions of any great importance in the edition which has just appeared.

ART. II.—*On Artificial Digestion as a Remedy in Dyspepsia, Apepsia, and their Results.* By EDWARD BALLARD, M.D., Licentiate of the Royal College of Physicians, and Fellow of the Royal Medical and Chirurgical Society of London, Lecturer on the Practice of Medicine at the School of Medicine adjoining St. George's Hospital.—London, 1857. pp. 46.

THE employment of pepsine prepared from the stomachs of the lower animals, and especially from the rennet-bags of ruminants, was introduced into therapeutics some years ago by Dr. Corvisart; and in 1854, this physician published the results of his experience on the subject. Dr. Ballard has been the first to adopt Dr. Corvisart's suggestions in this country; and in the little book before us communicates his own views, and the conclusions he has drawn from his own practice.

When we read of the extraordinary power possessed by pepsine in producing the solution of albuminous substances out of the body, as originally shown by Wasmann, we join in Dr. Ballard's expression of surprise that no attempts should hitherto have been made to isolate this principle for administration to persons whose stomachs are unable to perform their duty efficiently. The whole merit of the introduction of pepsine into our *Materia Medica* belongs to Corvisart; his own extensive experiments, physiological and pathological, and the numerous trials since made with the preparation by other Continental physicians of eminence, render it a duty of British physicians to arrive at a definite conclusion with regard to its value. Our own experiments have been as yet of too limited a character to justify our expressing a positive opinion, but the physiological evidence is so strongly in favour of the employment of the remedy, that the additional testimony of practical men as to its efficacy in disease should not fail to secure for it an extensive trial. For this purpose, however, it will be necessary that our own chemists should prepare it, and at as low a price as possible, since the cost of transmission added to the original cost of the preparation in Paris, is an impediment to its very general employment.*

Pepsine is indicated in cases of dyspepsia connected with a deficient secretion of gastric juice, and is calculated to allay the unlimited variety of symptoms that are attributable to that cause.

"It is especially where these disturbances succeed the use of animal food, that the employment of pepsine is chiefly indicated. It often enables a patient, who has not dared to attempt it, and could not do so without suffering, at once to cut it with impunity. Nor is this operation tardy. The first dose usually in such instances produces an effect; and after two or three more, no further discomfort is perceived. Even the severest cases of gastralgia after

* It is sold under the name of *Poudre nutritive*, and prepared by M. Boudault, a chemist, in Paris. The cost of a drachm, which is equivalent to four doses for an adult, is half-a-crown, in London. The bulk of the powder consists of starch.

food are almost as by a miracle relieved by its assistance. When it fails to give relief to painful digestion after three doses have been used, and still more so when future doses equally fail to assist digestion, it is probable either that the dyspepsia does not arise from a defect of the gastric secretion, or that some other condition predominates as its cause, such as hyperæsthesia of the stomach, or atony of its muscular parietes." (p. 15.).

In these cases respectively, the addition of minute doses of morphia or strychnia is found beneficially to counteract the secondary morbid element, and thus to enable the pepsine to effect its peculiar operations. Many diseased conditions, resulting from enfeebled digestive powers, are stated to be benefited by this remedy in the adult as well as in the child. In the latter we would especially recommend that it be extensively tried, since there are few chronic infantile complaints that may not be traced back to defective nutrition as their *fontes et origo mali*.

With these few remarks we introduce Dr. Ballard's book to our readers. The cases which he gives are generally confirmatory of the previous observations made by our foreign confrères, and like the remainder of the book, deserve a careful perusal.

ART. III.—*Torquay in its Medical Aspect as a Resort for Pulmonary Invalids*. By C. RADCLYFFE HALL, M.D., Licentiate of the Royal College of Physicians, Physician to the Torquay Hospital for Consumption, formerly Physician to the Bristol General Hospital, &c.—London, 1857. pp. 165.

Madeira, its Climate and Scenery. A Hand-book for Invalid and other Visitors. By ROBERT WHITE. Second Edition. Edited, and in great part Re-written, with the addition of much New Matter, by JAMES YATE JOHNSON. With a Map of the Island. Edinburgh, 1857. pp. 338.

THE therapeutical influence of climate on pulmonary disease is so important and practical a subject, that we are glad to see any contributions to our knowledge like those above-mentioned. Without going so far as to assert that every practitioner ought to be acquainted with the chief features of all the places generally resorted to by pulmonary invalids, we may at least conclude that it is highly advisable the confidential medical attendant of the *poitrinaire* should have some voice in determining the place his patient selects; it is not very likely or desirable that he should possess any such influence, if completely ignorant of this kind of medical geography. There can be no doubt that the remedial effect of climate in many chronic pulmonary affections, is quite as distinct (to say the least of it) as that of the drugs held in most estimation in the treatment of these diseases. And the benefits which experience proves, meteorology goes far to explain. So that whatever the effects of repose, change of scene, amusement, or the other circumstances which attend travel in search of health, they cannot account for more than a very small fraction of the benefits obtained.

Dr. Hall's little book, dedicated to a lady, and written at her suggestion, seems to be addressed at least as much to the public as to the profession. Its subject, however, goes far to explain what the history of medical authorship shows is generally an equivocal method of writing. An invalid who is meditating a toilsome (if not hazardous) journey from a distant part of England, has a right to expect somewhat more exact and decisive information than the few and oracular words in which he must often be content to learn the diagnosis and treatment of an ordinary indisposition. Indeed, it is obviously of the highest importance that he should know enough of the geography of the place to select his residence aright; the more so, that few persons would think of calling in a physician expressly to choose the street or terrace most advisable for their particular case, or to render into suitable Latin the scarcely translatable *dictum*, "Let him or her live (if possible) in Little Arubella Crescent."

In short, we are of opinion that Dr. Hall has an unusually good excuse for addressing the public as well as the profession, on the medical aspect of Torquay; and believe that the little book he has produced will be useful to those for whom it is intended, and creditable to himself, as a sound practical physician, residing in the neighbourhood of which he treats.

It is evidently the work of an accomplished physician, who writes in an easy and not inelegant style, whose statements (apparently derived from careful observations) are clear and explicit, without being too minute, and who especially recommends himself by the candour with which he points out the bad (as well as good) effects of the climate and seasons in certain cases. The medical reader may perhaps regret that many of the details supplied are not more fully gone into. But he will find quite enough to give him a good insight into the points which it is chiefly important for him to know; and especially, a comprehensive view of the effects of Torquay on various classes of disease, and of its local modifications of climate. Indeed, by a judicious introduction of collateral matter, the author has contrived to make his work an interesting sketch of the effect of climate on tubercular disease generally.

The second of the above works is to some extent contrasted with the first, in the fact that its strictly medical contents are not only a smaller fraction of the whole, but occupy a more subordinate rank in their treatment. A chemist would perhaps be tempted to describe the two as representing a super- and a sub-salt; the physis being the acid, and the climate the base of the combination in both treatises.

The "Hand-book for Madeira" fairly deserves this title, and emulates the merits of that red-coated English army of similar books which, under the generalship of John Murray, yearly invades all the accessible parts of Europe. The fat old exile of Ghent somewhat profanely said of the birth of Wellington in the same month as Napoleon: "Providence owed us this counterpoise." And, similarly, we really think that in this age of vapid Tours and Travels, nothing but the counterpoise of Guide-books preserves critics from maniacal delirium. Let the reader who rises from the perusal of this excellent though brief description of what is

perhaps to him a hitherto unknown island—prepared, as a practised traveller ought to be by its pages, to perambulate the whole island with no more provision than a pocket compass, a loaf, and the map at the end of the volume—let him only reflect that he might have been reading “Dottings down Dahomey,” “Trottings through Thibet,” “Antics around the Andes,” or any other of the various tours of alliterative title published and to be published! Let him, we say again, think what he has escaped, as well as what he has gained, and be grateful for a work which not only must have added to his knowledge, but also subverted what moralists tell us is one chief object of amusement, as well as of industry—namely, kept him from doing much worse!

The peculiar claims of the climate of Madeira have been so long before the medical profession of this country, that it is scarcely surprising to find that even the copious details collected in such a volume as that before us add little of importance to what is generally known respecting it. The excellent treatise of Sir James Clark pointed out its chief features so conclusively (and as later researches show, so exactly) many years ago, that its even temperature (about 13° Fahr. being the average monthly variation), its uniform moisture, its warmth in winter, and its coolness in summer, require no mention. We confess, however, to a little alteration and correction of some others of our previous notions respecting it. With its volcanic geology, and its chain of mountains rising to six thousand feet in height, it evidently includes regions accessible (and, indeed, habitable), where any constitution especially requiring it might secure a far more bracing climate than that of the sea-coast during much of the year. At any rate, the British invalid proceeding to Madeira need have little fear of discovering that he has landed on a remote island, of which the climate is as a whole unsuitable to him during any part of the year. There is the more reason to notice this fact, because Dr. Hall has the merit of specifically informing his readers, that the climate of Torquay has an injurious effect in some maladies, and at certain seasons of the year—an objection which, if applicable to Madeira, would obviously add to the responsibilities of both physician and patient in deciding upon a sojourn there.

ART. IV.—*Remarks on Vesico-Vaginal Fistula, with an Account of a New Mode of Suture, and Seven Successful Operations.* By N. BOZEMAN, M.D., of Montgomery, Ala. 1856. (From the ‘Louisville Review’ for May.)

This brochure is a valuable contribution to the therapeutics of a lesion long a surgical opprobrium, which has of late engaged the earnest attention of many ingenious practitioners. The author has a new method to extol, and it must be admitted that he adduces good theoretical and practical arguments in its favour. He first briefly describes the anatomy of the region and structures concerned—the situation and peculiarities of the lesion. He insists that it is common for two fissures to co-e. ist, and remarks that this form of injury has

escaped the notice of authors. He briefly adverts to the various methods of treatment that have been successively practised, and the indifferent success that has attended them. He insists upon the objections to the quill-suture, and finally, for the purpose of comparison or contrast with his own method, fixes upon the modifications of the quill-suture and the clamp-suture of Dr. Marion Sims for more especial criticism. Dr. Bozeman says that he has several times found the clamp-suture of Dr. Sims ulcerate and cut its way out, and that his failures by this method led him to devise the one which forms the object of his memoir. Another objection is certainly well founded, and it applies to every form of suture with which we are acquainted, excepting the brad-suture of Mr. Brooke.

"The sutures must be introduced exactly alike; each wire must be entered on the same line, at a proper distance from the edge of the fistula, and brought out in a similar manner, so that when the shot are secured in their places, the same amount of traction, and in the same direction, shall be exerted on each suture. Unless these precautions be observed, the clamp will not lie easy, and it is liable to do injury."

The *button-suture* is the name that Dr. Bozeman applies to his own contrivance. It is, he says, a modification of the twisted, as the clamp is a modification of the quill-suture. The essential parts of the apparatus consist of wire for the sutures, a metallic button or plate, and perforated shot to retain the latter in place. The button may be of lead or silver. The former hammered out to the thickness of one-sixteenth of an inch answers tolerably well. The latter can be made still thinner, and does better. The object of the button is to cover the fistulous opening after the introduction of the sutures, and its size and shape will therefore vary somewhat, according to circumstances. It is a matter of great importance that the under surface should be slightly concave, and the edge turned up. Along the middle of the button are arranged perforations for the passage of the sutures, which should be sufficiently large to admit two thicknesses of the wire readily. The number of these openings will depend upon the number of the sutures, which are usually placed about three-sixteenths of an inch apart. The edges of the fistula having been pared, the wire sutures are to be lodged in their respective places by attaching them to the ends of silk ligatures previously carried by means of a needle through the septum. The space between the entrance of the needle and the edge of the fistula need rarely exceed half an inch. It is not necessary to be over-scrupulous in entering and bringing out the sutures upon an exact line with each other, for each one in its action is entirely independent of the others. Thirdly, instead of being obliged to place the sutures parallel with each other, you may, if the peculiar nature of the case indicate, insert them in any direction, and thus bring within the sphere of successful treatment a large class of cases, which, owing to the irregular shape of the fistula, and the scarcity of tissue not admitting of extensive paring, cannot be subjected to the clamp-suture.

The wire for each suture should be about eighteen inches long. When passed, they are drawn together by a *suture-adjuster*—an instrument which pinches the wires on either side of the fissure into approxi-

mation with its fellow. The button of suitable size and shape is now placed upon the wires, the concave surface corresponding to the fistula, and carried down gently against the surface of the ports. The shot are then passed down over the approximated ends of the sutures, and fixed against the button. The author insists that one of the marked peculiarities of the button-suture is the separate and independent action of each wire. The only precaution requisite is, to have the shape of the button made to correspond to that of the fistula, and its perforations to that of the points of suture. Quietude and accuracy of approximation are secured. "But probably one of the most important advantages of the button-suture is the protection that it affords to the denuded edges of the fistule." The edges thus covered by a sort of shield are secured from irritation by discharges and chafing.

The cases related in which this ingenious proceeding was employed certainly bear evidence to its efficacy. But we think it right to observe that Dr. Bozeman has earned for himself an easy triumph by comparing his suture with that of Dr. Sims, instead of with that of Mr. Brookes. It so happens that the brad-suture of this latter surgeon fulfils exactly the indications which the author points out as being exclusively accomplished by his own. No form of suture—not even Dr. Bozeman's—admits of being more effectually adapted to varied circumstances, or possesses the important merit of allowing each point of suture to exert an independent action. It even appears to us to enjoy the advantage of diverting the dragging more completely from the edges of the fistule, and to be in consequence less liable to failure from the sutures ulcerating their way out. In fine, Dr. Bozeman ought to have contrasted his operation with Mr. Brookes's. By leaving this out of sight—which in all probability he has done simply from not comprehending its exact nature and mode of action—he has overlooked the fact that two of the essential conditions of success in the cure of this troublesome lesion—accurate adaptation and independent action of each point of suture—had been gained to surgery before his own introduction. The peculiar and great merit of Dr. Bozeman's button or shield lies in the protection it affords to the line of fissure. This contrivance is new, and we anticipate that it will be found to be a valuable accession to our means of ensuring the success of the operation for the cure of vesico-vaginal fistula. In this belief, we have given Dr. Bozeman's description in detail, and commend it to the consideration of those who are interested in plastic surgery.

ART. V.—*On certain Painful Muscular Affections simulating Inflammatory, Neuralgic, or Organic Disease.* By THOMAS INMAN, M.D. (Lond.), Lecturer on the Principles and Practice of Medicine at the Royal Infirmary Medical School, Physician to the Northern Hospital, &c., &c.—*Everpool*, 1856. pp. 49.

DR. INMAN details several interesting cases in proof of the fact that pains frequently occur in various parts of the body which may be shown to result from over-fatigue of certain sets of muscles, but

which, unless traced to their true cause, may be, and frequently are, regarded as the result of a deeper-seated and more serious disease, to the no less serious detriment of the patient. The author observes that the abdominal muscles are more "frequently the seat of pain than any others," and "that it is always (when muscular) referred to the costal origin of the external oblique." The signs by which the nature of these pains is to be detected, are stated thus:

"They are usually dull and aching in the morning, then more acute, and at night they are severe and burning; they are scarcely relieved by pressure, stretching to the opposite side gives temporary relief; a recumbent posture on the affected side almost always cures for a time. The pain is commonly absent in bed and shortly after rising, but goes on increasing in severity towards night. Friction has little influence over it; taking a deep inspiration commonly aggravates it, or appears to do so, by bringing on a 'stitch'—i.e., a cramp in some of the muscular fibres—and care must be taken lest this symptom should suggest pleurisy." (p. 25.)

Dr. Inman's paper is instructive, and contains numerous suggestive remarks, which render it valuable to the practitioner, to whose attention we specially commend it.

ART. VI.—*Practical Observations on the Use and Abuse of Tobacco.*

By JOHN LIZARS, late Professor of Surgery to the Royal College of Surgeons, and lately Senior Operating Surgeon to the Royal Infirmary of Edinburgh. Sixth Edition.—*Edinburgh*, 1857. pp. 42.

ANY one who has experienced the beneficial effects of a cigar after a day of intense bodily fatigue, will feel that there is something wrong in the sweeping denunciation to which the employment of tobacco is at present exposed. We entirely agree with Mr. Lizars, Mr. Solly, and others, who disapprove of the habitual resort to so powerful a sedative as tobacco is, even in its mildest form; but we much fear that the extravagant manner in which the war is commenced will fail to produce the effects that all sanitary reformers would desire. Thus, the frequency of cancer of the tongue, of which Mr. Lizars gives us three very vivid representations, and which he attributes to excessive smoking, cannot be proved to bear any very alarming proportion to the number of persons who indulge in the Virginian weed. Nor, as has been pointed out by a contemporary, does insanity bear any ratio to the extent to which smoking prevails. In short, a much more careful collecting and sifting of evidence will be necessary to place upon a scientific basis the assertions of the *coûte qui coûte* enemies of tobacco. We hope to bring this very important question more fully before our readers; but while we have no hesitation in expressing ourselves generally in favour of a *razzia* against Rogalias, Paesanos, Cubas, Cavendish, high-dried Welsh, Rappee, *et hoc genus omne*, we would beg the energetic opponents of the tobacco-nuisance to bear in mind that there is something to be said on both sides, and that they are likely to damage a good cause by the excess of zeal and vituperation which they are now indulging in.

ART. VII.—*Varicose Veins ; their Nature, Consequences, and Treatment, palliative and curative.* By HENRY T. CHAPMAN, F.R.C.S., &c.—London, 1856. pp. 99.

THIS little volume, the author states in the preface, consists, with the exception of a short section on the palliative treatment of varix, of a reprint of several papers on the curative treatment of the above complaint, from the pages of the "Medical Times and Gazette." The author lays stress on the intimate connexion which exists between dilatation and inflammation of the venous walls, and contends that pathological writers have not pointed it out with such distinctness as to attract attention to it practically.

In the first part, the author describes the nature, causes, and consequences of varix; in the second, the treatment. Under the latter head he justly condemns the various surgical operations that have been heretofore resorted to for the cure of the malady, because—

"First, there is more or less danger of extensive phlebitis supervening upon the section or ligature of veins, in whatever manner it may be conducted. And, secondly, were no such consequence to be apprehended, every operation hitherto devised fails, in the majority of instances, in accomplishing the object for which it was performed." (p. 40.)

Under the head of curative treatment, the author describes his appliances of wet strapping and bandaging, with ingenious modes of effecting local compression. We believe indeed that, at the present time, all right-minded surgeons are agreed that the best mode of remedying this complaint is by the aid of circular pressure. "In the present state of information upon the subject," says Mr. Syme,* "it seems that the most judicious course in treating varix is to be satisfied with remedying its bad consequences, and using means for preventing their occurrence."

The author has appended notes of eight cases corroborative of the utility of the measures which he advocates. The work is clearly written, and reflects credit on the intelligence and industry of the author.

ART. VIII.—*The Liverpool Medico-Chirurgical Journal.* No. 1.
January, 1857.

WHETHER or not the conductors of the 'Liverpool Medico-Chirurgical Journal' have met a want by the establishment of a half-yearly periodical, is a point upon which we offer no opinion. That a town containing hospital accommodation for 1400 patients presents a large field for the cultivation of medical science, there can be no doubt of; but it is an open question whether, in the commonwealth of science, every province or provincial town should be individually represented by its own journal, or whether their honour and dignity would not be sufficiently maintained, and the true interest of science advanced, by seeking as much as possible to combine and interchange their labours in periodicals representing a still larger sphere. Time will afford the

* Principles of Surgery, p. 122. 1856.

answer. But we certainly think that the new Journal justifies the feeling of respect, we would almost say of veneration, which the name of Liverpool excites when we examine the records of our profession, and call to mind what men like Park, Alanson, and Currie have achieved;—Park, who was the first to perform, and successfully, excision of the knee-joint; Alanson, the chief reformer of the old system of amputation, according to which, out of forty-six cases, nineteen died, and none recovered without more or less dangerous symptoms; Currie, whose name stands equally high as a physician, a literary man, and a politician.

The new Journal is very properly introduced by a sketch of the medical history of Liverpool, by Mr. Fletcher; and then follow eleven papers on medical, surgical, and obstetric subjects, of a practical character, and of more or less interest. We would particularly direct attention to Mr. Higginson's cases of transfusion, and to Dr. Sinclair's case of idiopathic tetanus; to which we may have an opportunity of adverting more fully in our quarterly reports.

ART. IX.—*On Rheumatism, Rheumatic Gout, and Sciatica: their Pathology, Symptoms, and Treatment.* By HENRY WILLIAM FULLER, M.D. Cantab., Fellow of the Royal College of Physicians, London, Assistant Physician to St. George's Hospital, &c. &c. Second Edition.—London, 1856. pp. 464.

WE are not surprised to find that a second edition of Dr. Fuller's work on rheumatism is already called for. The book recommends itself so strongly to the professional reader, both on account of the scientific treatment of the subject and for the clearness and amenity of its style, that we have no doubt of its being very extensively referred to. Dr. Fuller has enriched the present edition by considerable additions, bearing chiefly on the therapeutical appliances at our command in rheumatic gout, in chronic rheumatism, and in sciatica.

ART. X.—*Defects of Sight; their Nature, Causes, Prevention, and General Management.* By T. WHARTON JONES, F.R.S., F.R.C.S., Professor of Ophthalmic Medicine and Surgery in University College, London; Ophthalmic Surgeon to the Hospital; late Fullerian Professor of Physiology in the Royal Institution of Great Britain; Fellow of the Royal Medical and Chirurgical Society of Copenhagen, Corresponding Member of the Imperial Medical Society of Vienna, Member of the Society of Biology of Paris, &c.—London, 1856. pp. 149.

AFTER an introductory chapter, in which the structure and functions of the individual parts of the eye are succinctly explained, Mr. Wharton Jones discusses the choice of light for working by, and the general precautions to be observed in the employment of sight. He then, in the third chapter, proceeds to place before the reader the special dangers which beset the organ. The succeeding three chapters are devoted

to the defects of sight, cataract, mydriasis, myopy, presbyopy, amaurotic affections, and defects depending on loss of correspondence of the sensations and movements of the two eyes.

The third part, which comprises two chapters, is devoted to the prevention and management of morbid states of the eyes affecting different periods of life, and to the preservation of the eyes in certain general diseases. We have perused the work with interest, and have no doubt, from its practical utility, that it will find a good reception with the public. At the same time, we would suggest that the remarks on the methods of operating in cataract are not adapted to the general objects of the book; while other parts, especially the observations on colour-blindness, might very suitably receive further extension.

ART. XI.—*Die Cholera in der Schweiz.* Von HERMANN LEBERT, Professor d. Med. Klinik in Zurich. — *Frankfurt-am-Main*, 1856. pp. 93.

The Cholera in Switzerland. By HERMANN LEBERT. 1856.

LEBERT, the well-known micrologist, here presents himself to us in a field of research very different from that on which we are accustomed to meet him. He gives us the results of his observations in the epidemic of cholera in Zurich in the autumn of 1854 and 1855. In the first chapter we find a short account of the former epidemics of cholera in Switzerland; he afterwards describes the manner in which the disease manifested itself in the town of Zurich, and then passes on to the principal part of the memoir, his own observations in the hospital of the canton. Here we meet first with his notes on the diarrhœa accompanying the epidemics of cholera, and particularly on that form which usually precedes the real attack; and has, by many pathologists, received the designation "premonitory." We are struck with the large proportion of cases in which it had been altogether absent. As this is a *questio verata*, we will introduce Lebert's own account:

"Among our 96 cases, it had been doubtless present in 45 cases—i. e., in 47 per cent. . . . 18 cases were doubtful. In some of them the prodromic diarrhœa had probably existed, but could not be proved with certainty; if we add, however, even these to the ascertained cases, we yet obtain scarcely two-thirds of the total number. The complete absence of the prodromic diarrhœa was demonstrated in 33 cases—i. e., in more than one-third of the whole.

"Concerning the relation of the diarrhœa to the fatal cases, and to those ending in convalescence, the following table shows:

Among the 45 fatal cases,		Among the 51 terminating in convalescence,	
It was ascertained in . . .	20, or 44 per cent.	... in 25, or 49 per cent.	
It was doubtful in . . .	13, „ 29 „	... in 5, „ 10 „	
It had been absent in . . .	12, „ 27 „	... in 21, „ 41 „	

(p. 25.)

The duration of the prodromic diarrhœa varied from one day to three weeks; it was not found shorter in the fatal cases than in those who recovered.

The *cholera nostras*—or, as we should term it, sporadic or English cholera (cholérine)—is considered as essentially identical with Asiatic

cholera, but only as a milder form of it. It was still more rarely preceded by diarrhœa than the severer form.

We forbear entering into the description of the various symptoms; we can, however, not omit mentioning Lebert's notes on the secretion of urine. The continuance of the secretion during the whole attack has been observed six times among the ninety-six cases; but also in these the quantity was considerably diminished, and albumen was always admixed. In some of the remaining cases the suppression of the urine ceased after the lapse of forty-eight hours, in others only after four or six days; on the average, however, urine was passed for the first time in the course of the third or in the beginning of the fourth day. Not more than once the urine first discharged was found free from albumen. The further examination of the urine by Messrs. Lehmann and Volk, of Zurich, showed the chloride of sodium and the urea to be considerably diminished during the first days after the suppression of the urine; that their amount afterwards becomes increased beyond the average, as is the case with the total quantity of the urine before it returns to the normal medium. Thus we find, in one of the cases, that the *quantity of urine* (twenty-four hours) fluctuated from the third to the sixth day between 405 and 470 cubic centimètres; that it rose on the seventh to 2879 cubic centimètres, and averaged on the following days nearly 1500 cubic centimètres; *specific gravity*, between 1006 and 1014; *chloride of sodium*, from the third to the sixth day, between 0.3272 and 0.9494 gramme; on the seventh, 7.7215 grammes; on the eighth, 5.5398 grammes; *urea*, from the third to sixth day, 6.266 to 7.094 grammes; on the seventh, 60.594 grammes; on the eighth, 40 grammes. These figures are the more valuable as they agree with those obtained by Professor Buhl of Munich.

The *cholera rash* was observed only three times, and in each of these cases towards the end of the first week; two of them terminated in convalescence, one fatally.

Regarding the age of the patients, the largest number were between thirty-six and forty-five years old. The proportion of fatal cases was largest after the sixtieth year.

For the author's remarks regarding the pathological anatomy of the disease, and the treatment adopted, we refer to the essay itself, which may be perused with pleasure and advantage. The various chapters are elucidated by a series of cases. The whole is written in an easy style, containing scarcely any references to other authors, which may be partly attributed to the circumstance that Lebert wrote it away from his usual haunts, in the delightful little town *Bex*, in Switzerland.

ART. XII.—*The Change of Life in Health and Disease.* By EDWARD JOHN TILT, M.D. Second Edition. London, 1857. pp. 307.

WE have much pleasure in introducing to our readers a second edition of Dr. Tilt's work, because we believe that much ignorance on the part of the public, and no little negligence on that of our profession, have

contributed to the prevalence of erroneous views of the subject of which he treats. The book embraces the physiology of the change of life, the general principles of pathology at that period, the general principles of therapeutics and hygiene, and the consideration of the diseases of the reproductive and other organs occurring at the climacteric. It also contains a number of tables of more or less interest, to which we must refer the reader.

The fact of protracted menstruation and fecundity is shown in a tabulated statement, that of 10,000 pregnant women, 436 were upwards of forty years of age; and of these, 51 exceeded the age of forty-five, and 3 the age of fifty—one being fifty-two, another fifty-three, and the third, fifty-four: on which our author remarks:

"I have insisted on the frequency of pregnancy late in life, because grievous mistakes have often followed the practitioner's persuasion of its impossibility. To my knowledge, pregnancy late in life has been mistaken in three cases for an ovarian tumour, and was treated by iodine, mercurials, and tight bandaging, which caused the death of the child, and greatly compromised the mother's health."

The following observation will interest those who may be called upon to advise in such matters:

"If I were consulted respecting the chance of issue from a lady aged forty-five, I should ask when menstruation first appeared; and if it were eighteen or nineteen, I should infer the prolongation of the menstrual flow beyond the average time, which would of course increase the chance of loss to be sustained by an insurance office."

In a brief notice like the present, we can only point out in general terms the views and intentions of the author, leaving the more intimate examination of the work to those who desire to investigate and study the subjects it contains. The particulars chiefly sought to be established may be thus summed up: the period of life comprised between the fortieth and fiftieth years, commonly called the change of life, is eminently critical; while in most women the critical phenomena with which this epoch abounds are instrumental in removing previous complaints and strengthening the constitution, there are a certain number of women in whom these critical phenomena give rise to numerous, and sometimes fatal, diseases. The natural history of the change of life can alone indicate the best modes of treatment for the complaints incidental to this period. For the preservation of the health of women at the change of life, it is necessary that they should adhere to a judiciously laid down code of hygiene. Many forms of nervous disorder, affections of the digestive organs, especially of the biliary apparatus, and of the skin (these last being rather tedious than severe), frequently occur at this period. There are ganglionic nervous affections, which should be carefully distinguished from the cerebral and the spinal nervous affections, with which they are now confounded, because they often coincide and alternate with them. There are several well-determined modes of cerebro-spinal disturbance, to which the term hysteria is indiscriminately applied, and unless clearly defined, that term is a bar to the progress of mental pathology, by lending to ignorance a scientific cloak. Cerebral affections are so common at the

change of life, that few women, if any, escape the milder forms of cerebro-spinal disturbance; and these, if neglected, sometimes merge into the many varieties of insanity, the worst cases being, however, peculiarly amenable to treatment, of which the local application of sedatives is an essential part. And lastly, women at the change of life are frequently afflicted with cancer, gout, and rheumatism.

The chapter (fourth) on the "General Principles of Treatment at the Change of Life," contains some very judicious remarks on the employment of remedies, calculated to be useful to the practitioner; and we quote the following observations in order to show the mode of reasoning adopted by the author:

"If nature bled, in different ways, 208 women out of 500, it evidently shows that this spontaneous effort of a hidden force to relieve the system often deserves imitation. If 326 out of 500 suffered from sinking at the pit of the stomach, from fainting, debility, and chlorosis, it shows that stimulants and strengthening treatment may be as indispensable at the change of life as at puberty. If 75 out of 500 had frequent diarrhoea or constipation at this period, it shows that purgatives may often be safely exhibited. If 255 out of 500 had unusual perspirations or sweating, it is a positive proof of the utility of sudorifics at this epoch. If 134 out of 500 suffered continually from biliousness, jaundice, water brash, vomiting, and dyspepsia, it is clear that alkalis will be often useful. If in 277 out of 500 the nervous system was actually steeped in a more or less intense state of stupor, it is an indication of the great utility of sedatives. If, in many, the organ most prone to disease suffered most at this period, does it not show the necessity of discovering this weak organ from the patient's previous history, so as to give it protection?"

"In exhibiting remedies at this period, it is necessary to guard against a prejudice firmly rooted in the minds of many, that the change of life is synonymous with old age, for the principles of treatment applicable to diseases of old age will not suit those of the change of life. Then, as at puberty, there may be vital energy, but latent and oppressed, so that bleeding and lowering measures sometimes develop an unexpected amount of strength. I thoroughly believe in the efficacy of the modes of treatment suggested by the study of natural phenomena, for several cases recorded in this work will show how, by following the suggestions of nature, I have been able, in a few days, to relieve patients who had been suffering for years. With the exception of those afflicted with cancer or structural affections, the number unaffected by treatment is extremely small, though many, satisfied with a first instalment of recovered health, will not allow a perfect recovery to be made. They would rather bear their accustomed evils than submit to the tedium of following out a systematic plan; they oppose the stubbornness of prejudice to advice founded on fully-proved facts, and then impertinently talk of the 'deplorable inefficacy of medicine,' when, in fact, *they will not be cured.*"

We heartily concur in the hope, earnestly expressed by the author, that an accurate study of this important period of life may diffuse a better appreciation of its beneficial influence, as well as lead to the prevention of the sufferings often attending it, and to more rational and systematic modes of treatment.

ART. XIII.—*The Mechanism of the Gubernaculum Testis, with an Introductory Sketch of the Development of the Testes, and an Appendix on the purpose of their Descent from the Abdomen.* By JOHN CLELAND, M.D.—Edinburgh, 1856. pp. 40.

THIS is an inaugural prize thesis, the nature of which is sufficiently displayed by the title. After a brief sketch of the development of the testes, Dr. Cleland enters upon the special subject of his work by quoting the observations of original inquirers from Hunter downwards, and then records the conclusions which he himself arrived at after the dissection of five subjects at about the middle period of foetal life. These are summed up as follows:

"First, they show that there is no simple ligament running directly from the testicle to the scrotum, but that the fibrous tissue of the gubernaculum is composed of a superficial fibrous layer of peritoneum, and of the fibro-cellular tissue within the same, which occupies the plica gubernatrix; of ascending and descending fibres from the aponeurosis of the external oblique muscle; and of ascending and descending fibres from the fascia of the groin.

"Secondly, they show that there is no permanent definite sac, such as is described by Weber, but there is a sac-like space left, in the first instance between the serous and fibrous layers of the peritoneum, afterwards between the different fibrous layers, and lastly between the fascia, on the one hand, and the gubernaculum as made up of all the peritoneal structures, on the other.

"Thirdly, they confirm the existence of cremasteric fibres, arched downwards upon the gubernaculum, and also of an ascending set of muscular fibres; but these latter do not occupy the position which authors have assigned to them—namely, within the plica gubernatrix." (p. 22.)

The author dissents from the view which assigns to the muscular fibres of the gubernaculum (believed afterwards to become cremasteric) any agency in effecting the descent of the testicle from the abdomen to the scrotum, and combats the arguments adduced from certain facts supplied by comparative anatomical researches, believing that it is a vital and not a mechanical process.

An appendix, on the object of the descent of the testes in man, and three illustrative lithographed plates, complete the work.

Before closing our remarks, we are bound, in justice to the well-known labours of Mr. Curling, to claim for that gentleman, in this place, a measure of justice which he has not met in Dr. Cleland's hands. That this error has been inadvertent we doubt not, but it is not the less necessary on that account to point it out. In collating the observations of others, Dr. Cleland quotes M. Robin, and, in the succeeding paragraph, Mr. Curling; the former from the '*Gazette Médicale de Paris*, 1849; the latter from the '*Cyclopædia of Anatomy and Physiology*, article Testicle, 1850; stating that "the description of Mr. Curling is nearly identical with M. Robin's." (p. 15.) The inference from this passage that M. Robin was the prior observer, is natural and unavoidable. The fact, however, is, that Mr. Curling's observations were made and published many years before those of M. Robin, having first appeared in the '*Lancet*, April 10th, 1841, p. 72, as well as in the '*Medical Gazette*' of the same period; a circumstance which is moreover pointed out, we observe, in the article

referred to in the 'Cyclopædia,' in which place the author's original remarks in relation to this subject are quoted verbatim from the sources named.

ART. XIV.—*On Diseases of the Skin.* By ERASMUS WILSON, F.R.S.
Fourth Edition.—London, 1857. pp. 747.

MR. WILSON'S work, '*On Diseases of the Skin*,' has now been sufficiently long before the public to render any detailed notice of it on our part superfluous. In the present issue several additions have been made, which enhance the value of the book, and render it eminently a book of reference on this specialty. While we do not in any way underrate the importance of careful study of the local phenomena of skin diseases, we should be glad to see the questions regarding their relation to the viscera, to the organs of sanguification, and to the nervous system, answered by something more definite than a passing allusion to disordered assimilation and innervation. Whether we believe in the *diathèse herpétique* of French writers, and the *zurückgetretene Krätze* of some German physicians, or not, we cannot in daily practice fail to see the constant relation that exists between cutaneous affections and derangements of the internal organs. To place these vague notions on a firm basis of physiological pathology, is reserved for future dermatologists; in the meantime, we take pleasure in referring to Mr. Wilson's useful volume for the information now attainable, the more so as by the anatomical classification which he adopts, he makes a decided step in advance, and facilitates the acquisition of dermatology by removing much of the mystery that former writers had thrown around it.

ART. XV.—1. *Plates of the Brain, in Explanation of the Physical Faculties of the Nervous System.* By JOSEPH SWAN.—London, 1853. 4to. pp. 67. Twenty-two Plates.

2. *On the Origins of the Visual Powers of the Optic Nerve.* By JOSEPH SWAN.—London, 1856. 4to. pp. 45. Nine Plates.

THERE is confessedly no department of Anatomical inquiry more difficult, or less satisfactory in its results, than that which relates to the structure of the Cerebral Hemispheres. Beyond the general fact that the fibrous portion, or white substance, of these ganglionic masses connects the peripheral grey substance forming their convolutions with various masses of central grey substance—especially those forming the thalami optici, corpora striata, and corpora quadrigemina—and that it also forms commissures, uniting the two hemispheres with each other transversely, and the different parts of the hemispheres with each other longitudinally, nothing can be said to have been positively ascertained; and the statements of Foville and others, who have asserted the existence of special tracts of fibrous structure, taking various definite directions, have been received by all experienced anatomists with justifiable hesitation. No one who has never prosecuted this

inquiry for himself, can have any idea of the sources of fallacy which arise out of the variety of directions in which the fibres of the white substance are laid down, and from the mutual interpenetration of their different fasciculi; and it has always appeared to us extremely easy for an expert dissector to demonstrate in a dead brain almost any set of fibres which the ideational action of his own living cerebrum might lead him to believe in.

We have every respect for Mr. Swan's labours in Neurology, and believe that there are few persons more competent than himself to trace the distribution of the peripheral termination of a nerve-trunk, or to make beautiful preparations of its minute ramifications. But we are satisfied that he mistakes his vocation, when he applies himself to the unravelling of the perplexed problem which the structure of the Cerebrum affords; still more, when he adventures into the domain of psychical inquiry. We appeal to any one who has ever tried to anatomize a brain, whether Mr. Swan's plates represent anything that *can* exist in Nature,—whether, in fact, they are not rather pictures of *carvings* executed out of the brain-substance according to certain preconceived ideas in his own mind, than portraiture of *dissections* in which the true course of the cerebral fibres is made evident by the simple clearing away of what previously obscured it.

There is another circumstance that indisposes us to attach much importance to these products of Mr. Swan's skill and perseverance. He has essayed to grapple at once with the most complicated form of the problem, that, namely, which is presented by the Human brain, instead of commencing with the simplest, which is exhibited in the brains of Fishes, and gradually ascending through the Vertebrato series, until he arrives at Man. We have long been convinced that it is only by such an extended comparative investigation, and by combining therewith the careful study of development, that any light will be thrown upon this difficult problem. We are sure that much *can* be done by any one who has the time, patience, skill, and opportunity for such a work; and that a rich harvest of *fame* would be the sure reward. Mr. Solly laid a good foundation many years since; but no one has yet come forward to build upon it.

After the general opinion we have expressed, our readers will scarcely expect from us any detailed account of Mr. Swan's so-called discoveries. In fact, we should find it difficult to give such an account, so obscure is the author's language, so confused appear to be his ideas. In the first of these two memoirs, he seems to start with the notion that there must be a distinct cerebral source for what he terms the "physical" or involuntary powers of the nervous system (apparently forgetting or not knowing that these powers are manifested without any cerebrum at all); and this source he tries to discover by dissection. According to him, the motor tract of the *crura cerebri* (termed by him the voluntary tract) passes on through the *corpora striata* to the anterior lobes of the brain. The sensitive tract, on the other hand, passes up through the *thalami optici* to the convolutions chiefly forming the posterior lobes of the brain. Between these two, he considers that an involuntary tract is interposed, which

passes up through the anterior part of the thalami optici, and the narrow posterior part of the corpora striata, to terminate in convolutions placed at the outer sides of the summit of the brain towards the posterior part of the middle lobe. This tract he states to be continued downwards throughout the spinal cord, at the bottom of the deep anterior fissure, becoming combined with both the anterior and posterior columns of the cord.

In his second Memoir, Mr. Swan describes a special visual tract, arising from the part of the thalamus immediately adjacent to the soft commissure, and passing upwards to a special convolution, between the voluntary and involuntary tracts. We presume that Mr. Swan will ultimately discover a special tract for each of the other senses.

It gives us much pain to feel ourselves obliged to speak in these depreciating terms of labours which have been attended with so much expense of time, skill, and money, as those of Mr. Swan have evidently cost; but the interests of truth are paramount with us, and leave us no choice but to express our honest convictions.

ART. XVI.—*On the Drainage and Sewage of London, and of Large Towns.* By JAMES COPLAND, M.D., F.R.S., &c. &c.—London, 1857. pp. 30.

Nobody can have followed the lucubrations of the Board of Works with reference to the proposed intercepting sewers, which are to carry off the whole of the London sewage to some unknown destination, without feeling that the Board are acting under compulsion rather than upon any fixed principle. We would advise them to peruse the pamphlet by Dr. Copland, in which they may find clearly stated the great sanitary objects that a proper system of sewerage must achieve, forcible and well-grounded objections to the plans that have found favour with the Board, and proposals which, in a sanitary, agricultural, and economical point of view, merit serious consideration.

Dr. Copland very justly dwells upon the importance of utilizing the sewage, while he points out the numerous sources of danger likely to accrue from an accumulation into one focus of an immense amount of sewage. Hence he advises that numerous reservoirs should be formed, into which the drains of limited areas are to discharge their contents, and that deodorizing and disinfecting agents be there employed, to enable the sewage to be removed in the solid form for agricultural and horticultural purposes. It is a fair subject for discussion, whether the process of deodorizing and solidifying the manure be the most advantageous, or whether it might not be better, by the aid of steam-power and well-adjusted tubing, to convey the manure in a liquid form directly into the country; but of one thing we are certain, that any system of sewage which fails to make the excrementitious matter available for the farmer is unworthy of the support of the public, because thus only can we meet the sanitary requirements of the case, and shall at the same time secure a large additional return for the outlay, in the shape of an enormously increased fertility of our fields and our gardens.

- ART. XVII.—*An Introduction to Practical Pharmacy, designed as a Text-book for the Student and as a Guide to the Physician and Pharmaceutist, with many Formulas and Prescriptions.* By EDWARD PARRISH, Graduate in Pharmacy, Member of the Philadelphia College of Pharmacy, and of the American Pharmaceutical Association, and Principal of the School of Practical Pharmacy, Philadelphia. With two hundred and forty-three Illustrations. — Philadelphia. pp. 544.

WHILE on this side of the Atlantic we are gradually seeking to separate the duties of preparing and dispensing medicines from the duties of the medical man, because the present state of science renders it impossible for one man to compass both, our American friends are doing their best to perpetuate this heterogeneous compound. In the comparatively thinly-populated districts of the United States, it can as yet scarcely be otherwise, and we have no doubt that a book like the present may there prove of great use to the physician. It is what it professes to be—an introduction to practical pharmacy; and speaking of it in reference to our own country, we should say that its elementary character, and the profuse illustrations which it contains of the various apparatus required in the preparation of chemicals, in compounding medicaments, and in fitting up a shop, would render it very useful to an aspiring druggist.

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- ART. XVIII.—1. *A Practical Treatise on Stammering: its Pathology, Predisposing, Exciting, and Proximate Causes, and its most successful Mode of Cure, Scientifically Explained. With Remarks on the Principles which should Guide the Practitioner in the Treatment of all purely Nervous Diseases.* By J. H. AYRES POETT, M.D., Member of the Royal College of Surgeons, L.A.C., &c.—London, 1856. pp. 50.
2. *A Treatise on the Cure of Stammering; with a Notice of the Life of the late Thomas Hunt, and a General Account of the various Systems for the Cure of Impediments in Speech.* By JAMES HUNT, M.R.S.L., &c. Second Edition, considerably enlarged. — London, 1856. pp. 104.

THE first of these two treatises contains a rational exposition of the nature and causes of stammering, a defect which but too often results from a careless education in early life, and is the source of much anxiety and trouble to the individual afterwards. Dr. Poett points out that there are two points to be considered in reference to the removal of this fault. We should first attend to the health of the patient; an excitable state of the nervous and muscular systems, analogous to that prevailing in chorea, being the predisposing cause, which is amenable to therapeutic and dietetic agents. When we have removed any morbid disturbance of this kind, it becomes necessary to subject the individual to a systematic discipline, by which the bad habit may be overcome. This habit may be easily checked by a careful parent or master in its incipient stage; but when once esta-

blished, the stammerer will require to undergo a special training, demanding separation from his ordinary companions, and constant supervision. The sixth chapter contains remarks on nervous diseases generally, that are not at all to the point, and might in another edition be suitably omitted. • With this exception, we can recommend Dr. Poett's pamphlet.

Of Mr. Hunt's Treatise on Stammering, we are constrained to speak in less favourable terms. It contains some sensible remarks on the causation of the defect, but we are not informed of the method pursued by the author for its removal; while he indulges in polemical and self-laudatory remarks, and favours us with personalities and testimonials, which offer too great a savour of egotism to be agreeable or profitable to our readers.

ART. XIX.—*Summary of New Publications.*

A CONSIDERABLE number of works, of more or less interest, are before us, to which at present we are able only to make a passing allusion. Several of them will receive a more detailed notice in future numbers; but we must now content ourselves with directing the attention of our readers to their titles.

The completion of Todd and Bowman's 'Physiological Anatomy' will enable us to go fully into the merits of this important work in our next number, when we hope to couple with it the large volume on Human Physiology published by Dr. Draper, of New York. In Physiology we have also to mention the translation by Mr. Dallas of a work by Professor Siebold, 'On True Parthenogenesis in Moths and Bees,' in which the hitherto-disputed question of the existence of a *Lucina sine concubitu* is set at rest in the affirmative. With this class of books we must also range Dr. Holland's 'Constitution of the Animal Creation, as expressed in Structural Appendages,' under which quaint title the author enters into a minute disquisition on the hair, nails, and other parts of the animal frame, which may be regarded as mere appendages to the body. •

In Medicine we have first to mention Sir John Forbes' 'Inquiry into the relative Power of Nature and Art in Curing Disease,' which, we doubt not, will command an extensive circle of readers, and to which we shall pay especial attention in our next. Dr. Todd's Clinical Lectures 'On Diseases of the Urinary Organs' are similar in character to his recent lectures 'On the Diseases of the Nervous System.' The pathology and treatment of consumption has found an able exponent in Dr. Hall, of Sheffield; while the employment of compressed air in phthisis, first suggested by Messrs. Pravaz and Bertin, and scarcely as yet adverted to in this country, has been introduced into English therapeutics by Dr. Simpson, of Ben Rhydding. The subject is one that merits further investigation, but we cannot admit that the cases brought forward by Dr. Simpson in any way prove his statements that the compressed air-bath effects the entire removal of tubercle, and thus a complete cure of phthisis, even after the formation of a cavity.

Numerous Surgical works of importance deserve notice.

Dr. Mackenzie has published brief 'Outlines of Ophthalmology,' which cannot fail to be of use to the practitioner and the student. Dr. Hodgson's prize essay 'On the Prostate Gland' we shall have occasion to speak of more fully; the same applies to Mr. Holmes Coote's 'Practical Observations on Syphilis,' and the fifth edition of Mr. Coulson's ~~work~~ 'On Diseases of the Bladder and Prostate.' Mr. Hare's 'Cases and Observations illustrative of the Recumbent Treatment of Spinal Disease' merit the careful perusal of all interested in this distressing form of disease. We hope to find an opportunity of again devoting special attention to the subject of orthopaedics, when we shall also review Dr. Wildberger's work 'On the Treatment of Obsolete Luxations of the Hips.' The bulky ninth volume of the 'Transactions of the American Medical Society' offers but little that is likely to interest our readers. We receive with much satisfaction the Report of the Statistical Society of London, 'On the Medical Charities of the Metropolis,' the labours bestowed upon which will, we hope, ultimately be productive of a greater concentration of the extensive powers now bestowed upon our various charitable institutions. The Report of the Imperial Society of Medicine at Constantinople 'On Typhus' will be noticed in our next, when we hope also to enter fully into the important subject of adulterations. *apropos* of Dr. Hassall's latest work on their detection. Mr. Toynbee's 'Descriptive Catalogue of his own Museum of Preparations of the Ear,' will not fail to impress the reader with the conviction of that gentleman's untiring industry. To the young student of the microscopy and chemistry of the urine, Dr. Beale's Table will be useful.

A new Medical Directory has appeared, under the title of 'The Medical List,' which offers one useful feature not contained in its rival—the names of the medical officers of both services; but we cannot approve of the caprice with which the appointments and writings of medical men are given or omitted. In this respect the 'Medical Directory' is more uniform, and much more satisfactory.

Dr. Speer's translation of Messrs. Becquerel and Rodier's work 'On Pathological Chemistry' we shall take another occasion to treat more in detail. And we regret that it is out of our sphere to examine closely the very interesting Edinburgh Essays published by Members of the Edinburgh University. The only article of decidedly professional interest contained therein is a careful and temperate essay On Homœopathy, by Dr. Gairdner, to which we accord our full approbation, both in regard to style and to matter.

Among minor works and reprints, we would especially advert to Dr. Brinton's volume 'On the Pathology and Treatment of Ulcer of the Stomach,' consisting mainly of the papers which have appeared by that author in our Review; Mr. Field's prize essay 'On the Therapeutical Effect of Purgatives in the Horse;' Dr. Williams's paper 'On the Treatment of Iritis without Mercury,' and Dr. West's 'On Cranial Presentations.' Nor should we leave unnoticed the fifth edition which has just been issued of that very useful compilation, 'The Anatomical Remembrancer, or Complete Pocket Anatomist.'

• PART THIRD.

Original Communications.

ART. I.

On the Relative Mortality of Males and Females under Five Years of Age. By JOHN WILLIAM TRIPE, M.D., Medical Officer of Health for Hackney District.

THE enormous disproportion in the deaths of males under five years of age, as compared with females, has long been known, although, so far as we are aware, without receiving any extended statistical inquiry as to its causes. As a step towards working out this subject, we pointed out, in 1849, the great excess of deaths from scarlatina during the third year of life, and especially the preponderance of male deaths from this disease during the first decennial period of life. Some years afterwards, in an article published in this Review,* we dwelt very much on the vast difference in the rate of death of the two sexes from scarlatinal dropsy, where it was shown "that males suffer from scarlatinal dropsy in the proportion of 60·3 per cent., and females of only 39·7 per cent.; and that the per-centages vary between 61·5 and 57·5 per cent. for males, and 42·5 and 38·3 per cent. for females."

Before commencing the proper subject of our paper, we may state, that in the years 1845-53, which are those to which our inquiry is chiefly limited for the metropolis, the aggregate number of male births was 338,901, and of female 325,756, being at the rate of 1000 males to 961 females; and that the annual rate varied between 950 and 978 females to 1000 males. Had the rate of death been uniform in the two sexes, it is quite evident that there would have been a great excess of males over females under five years of age at the date of the Census in 1851. But this was not the case, for to each 1000 males under one year of age there were as many as 993 females of the same age; and the numbers at the ages of one to two years, two to three years, three to four years, and four to five years, were as follows: 995, 996, 996, and 995 females to 1000 males respectively. The statistics of the Registrar-General show, that in this country the rate of male births to those of females undergoes considerable variations, and that "the fluctuation in the proportions is greatest where the births are fewest in number."† We may also state that Mr. Sadler also long since observed the smaller proportionate number of male

* Vol. xiii. p. 236 et seq.

† Annual Report for 1850.

births which obtains in towns as compared with the country; and he explains it by the fact that inhabitants of towns marry proportionably younger women, and at a later period of life;* conditions which produce this result.

We have just pointed out that a comparison of the number of births of males and females with the census returns proves an excess of male deaths to have taken place in the metropolis during the years 1845-51, and we now propose ascertaining the rate of this excessive mortality. For this purpose we have tabulated the deaths registered in the Annual Reports of the Registrar-General, which show that during the years 1838-53, no less than 178,556 males under five years of age died in the metropolis to 159,278 females of the same age, or at the rate of only 892 females to each 1000 males; and that in the whole of England, 2,375,170 deaths of children under five years of age were registered during the same period, of which 1,275,095 were males, and only 1,100,075 females, or 1000 males to 863 females. On calculating the number of deaths of females to males for each year during this period, we have ascertained that, on an average at all ages, 103 males died to 100 females; whilst of children under five years of age, no less than 116 males died to 100 females. Also, that the smallest proportionate mortality of males at all ages was 101, and the largest 105; the average, 103, having occurred in ten out of the sixteen years examined. As regards the mortality under five years, the rate of variation was about the same, the smallest male mortuary rate having been 112, and the highest 118, to each 100 female deaths; the average of 116 having happened in eight, or one-half only, of the sixteen years.

The limited space at my disposal prevents me from discussing so fully as could be wished the following table (p. 457), which indicates the mortality under five years of age in several European nations, and in the cities of London and Paris.

The table shows, that of 1,812,467 deaths under five years of age registered in England, France, Belgium, London, and Paris, 967,398 were of males, and 845,069 of females, or 8735 females to each 10,000 males. Also, that of 2,822,129 deaths under five years in the above countries and cities, and also in Prussia and Sweden, 1,508,017 were of males, and 1,314,112 of females; of 231,937 deaths under six years of age in Saxony, 125,771 were of males, and 106,166 of females; and of 275,346 deaths under ten years of age in Norway, 147,285 were of males, and 128,061 of females. The aggregate of these deaths, which may for practical purposes be all grouped as under five years of age (the per-centage of those in Norway being the same as of the whole), amounts to 3,329,412, of which 1,781,073 were of males, and 1,548,339 of females, or only 8693 female to each 10,000 male deaths.

The column of per-centages of deaths under five years of age, shows that to every 1000 male, the following number of female deaths occurred:—863 in England,† 862 in France, 871 in Belgium, 876 in

* See Quetelet's *Treatise on Man*, chap. 2.

† The rate was precisely the same in England for the years 1838-44, and 1848-53.

TABLE I.—Deaths under Five Years of Age in England, France, Prussia, Sweden, Saxony, London, and Paris; Norway, under Ten.

	Under One Year.		Between One and Two Years.		Between Two and Three Years.		Between Three and Four Years.		Between Four and Five Years.		Total under Five Years.		Per-centages.	
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.
England, years 1839-44.....	301,463	238,338	100,902	95,526	53,533	53,183	35,636	35,514	26,054	25,650	518,088	447,111	100.0	88.3
France (mean of deaths in each year), 1817-81.....	97,532	79,156	25,170	24,193	14,103	13,643	9,272	9,026	6,630	6,562	162,732	132,555	100.0	86.2
Belgium, 1846-50.....	34,444	27,009	9,965	9,744	5,446	5,199	3,712	3,562	2,793	2,676	66,230	49,090	100.0	87.1
London, 1839-44.....	37,310†	30,431	16,775	15,953	9,250	9,043	5,836	6,013	3,963	3,949	73,230	65,369	100.0	89.3
Paris, 1847-53.....	45,797	36,945	14,944	17,836	10,023	10,000	6,279	6,257	4,268	4,031	85,340	75,029	100.0	87.9
Totals.....	561,936	425,730	197,900	179,892	101,973	101,246	67,453	67,607	48,136	47,794	967,398	845,069		90.6
Per-cents. of deaths under 5 years at each annual period	31.00	24.70	10.37	9.91	5.63	5.59	3.72	3.73	2.66	2.63	100.0	87.35	100.0	87.35
Totals brought down	561,936	425,730	Between One and Three Years.		Between Three and Five Years.		Between Three and Five Years.		Between Three and Five Years.		967,398	845,069	100.0	87.35
Prussia, 1839-40-41.....	171,093	139,424	Prussia		Sweden		Sweden		Saxony*		235,450	250,148	100.0	87.6
Sweden, 1821-40.....	173,695	143,776	Prussia		Sweden		Sweden		Saxony*		256,169	218,995	100.0	85.8
Saxony* (10 years).....	92,967	74,468	Prussia		Sweden		Sweden		Saxony*		125,771	106,189	100.0	82.0
Norway† 1801-25.....			Prussia		Sweden		Sweden		Saxony*		147,235	123,081	100.0	86.9
Totals*.....	989,801	806,429	Prussia		Sweden		Sweden		Saxony*		1,781,073	1,548,339		
Per-centages.....	100.0	80.65	Prussia		Sweden		Sweden		Saxony*		100.0	86.93		

* The Saxon returns do not show any ages of early childhood except under One and from One to Six years of age.
† The Norwegian returns of deaths are in decennial periods.

Prussia, 820 in Saxony, 858 in Sweden, 869 in Norway, 893 in London for the years 1838-44, and 879 for the years 1847-53, and lastly, 906 in Paris. These numbers differ far less than might have been expected, and show that the rate of male deaths at an early age is greatly in excess of that of females in most European countries; and also that the disproportion in the mortality is smallest in cities, especially in Paris, whilst it is largest in Saxony. The per-centages at the bottom of the table show that to every 10,000 deaths of males under one year of age in England, France, Belgium, Prussia, Sweden, and Saxony, only 8065 deaths of females happened; a most enormous disproportion.

The per-centage of deaths under five years during each annual period shows that no less than 55.76 of every 100 deaths under five years of age took place during the first year of life; or, by avoiding decimals, that of every 10,000 deaths of children under five years of age, 5576 occurred in the first, 2028 in the second, 1122 in the third, 745 in the fourth, and only 529 in the fifth year of life. That of these 10,000 deaths, 3109 were males and 2476 females in their first year; 1037 males and 991 females in their second; 563 males and 559 females in their third; 372 males and 373 females in their fourth; and 266 males to 263 females in their fifth year of life. This table therefore proves that by far the greatest excess of male deaths occurs in the first year; that the rate of male deaths approximates to that of females as age advances, and that it becomes nearly alike after the third year of life.

As regards the mortality rate of males to females in town as compared with rural populations, but little definite information is obtainable; but from calculations which we have made, the following have been deduced. The rate of females to 100 males in London is 89.2, and in Paris 90.6, against 86.6 for England and 86.2 for France. In Belgium and Sweden, on the other hand, it was 87.4 and 84.0 in the capitals, against 87.8 and 85.8 in the country. Although therefore no definite conclusions can be drawn from this statement, still the balance of evidence (the rate of mortality in England and France, in London and Paris, being respectively very nearly alike) is in favour of a larger proportion of female deaths occurring in towns than in the country. Had space allowed, this would have been proved to be pretty constant in London and Paris, as compared with all England and France.

We now propose showing that the relative proportion of male still-born children is greater than that of male deaths during the first year of life, and is so constant and large that it cannot depend merely on the dangers of childbirth.

TABLE II.—*Still-born Male and Female Children.*

	Males.	Females.	Per-centages.	
			Males.	Females
France (three years) ...	67.358	46.637	100.0	69.2
Austria (four years) ...	25.288	17.351	100.0	68.6
Belgium ...	38.312	28.359	100.0	74.0
Saxony (ten years) ...	17.618	12.839	100.0	72.9
Prussia (three years) ...	24.838	19.036	100.0	76.6

Our own experience is also in favour of the opinion that, in a large proportion of miscarriages, the fetuses are of the male sex. It is much to be regretted that for this kingdom we have no statistics of still-born children, so that no comparison can be made in this respect between this and other countries.

The results of Table II. are very striking, for we see that to each 1000 males who are still-born, there are in France only 692, in Austria 686, in Prussia 766, in Belgium 740, and in Saxony 729, still-born females. The variations in the ratios are by no means great, and they are yet smaller in each country during a period of years than those shown in the above table for different countries. This cannot be proved here, for want of space. It will be noticed that the variation does not amount to five and a half per cent., although the statistics are collected from such different nations and races; showing that the law is general, and that the cause of the excess of male deaths over those of females commences at the earliest period of life, and diminishes, as we have already shown, as age advances, even from the first month, and most probably week, of extra-uterine life.

This opinion receives very strong confirmation by a comparison of the ratios of still-born male and female children with those of children who die during the first month. We find in Belgium that the proportion of still-born female children to that of males is 740 to 1000; whilst that of deaths under one month old is 749 to 1000; and in England (years 1839-44), 765 to 1000. I will put these in form:

TABLE III.

	Males.	Females.
Ratio of male and female still-born children in France, } 1000	...	723
Austria, Prussia, Belgium, and Saxony	1000	...
Ditto in Belgium	1000	740
Deaths under one month in Belgium	1000	749
Deaths under one month in England	1000	765
Deaths under one year in Europe	1000	806

We must now pass on to a comparison of the mortuary rates in the two sexes from different diseases, and propose discussing them first under eight groups, which have been selected from the Returns of the Registrar-General.

Class 1. Deaths from zymotic diseases. .

" 2. " . tubercular diseases.

" 3. " diseases of the nervous system.

" 4. " " respiratory organs.

" 5. " " digestive organs.

" 6. " atrophy.

" 7. " premature birth.

" 8. " all other specified causes.

CLASS I. *Zymotic Diseases*.—From Table IV. we learn that out of 72,652 deaths under five years of age from zymotic diseases, 36,857 were of males and 35,795 of females, or 1000 males to 971 females. We also perceive that the proportion of the one to the other in the different years included in Table IV. varied between 92 and 104 females to 100 males respectively; and that, with one exception, the gross number of male deaths was in excess of those of females in every year.

TABLE IV.—*Metropolis 1845-53.—Deaths from Zymotic Diseases.*

Ages.	Under 1.	1—2.	2—3.	3—4.	4—5.	Total under 5.
Males ...	14,053	9349	6061	4375	3019	36,857=100
Females...	12,377	9442	6468	4572	2996	35,795=97.1
Males ...	19.3	12.9	8.4	6.0	4.2	
Females...	17.0	13.0	8.9	6.2	4.1	100

To 100 deaths of males in each of the different years under consideration, the following number of female deaths occurred:—104, 99, 97, 95, 92, 99, 97, 94, and 97.

It will also be seen that out of each 1000 deaths, 193 were of males, and 170 of females, under one year; 129 of males, and 130 of females, between one and two; 84 of males to 89 of females between two and three; 60 of males to 62 of females between three and four; and 42 of males to 41 of females between four and five years of age.

CLASS II. *Tubercular Diseases.*—Under this head are included scrofula, tabes mesenterica, phthisis or consumption, and hydrocephalus.

TABLE V.—*Metropolis, 1845-53.—Deaths from Tubercular Diseases.*

Ages.	Under 1.	1—2.	2—3.	3—4.	4—5.	Total under 5.
Males ...	5433	4297	2027	1114	772	13,593=100
Females...	4187	3541	1802	994	660	11,184=82.3
Males ...	21.9	17.3	8.2	4.5	2.9	
Females...	16.9	14.3	7.3	4.0	2.7	100

The rate of female deaths in each year to 100 males was 89, 83, 87, 80, 84, 81, 80, and 77.

We perceive, in casting our eyes over the per-centages for each year, that in one year only 823 female children died to each 1000 males; that the nearest approach to an even number was 887 female to 1000 male deaths; and also that 13,593 males died to 11,184 females; or in the proportion of 1000 males to 800 females. On examining the per-centages in the different years, we perceive that in no instance did the mortality of females equal that of males. It also informs us that out of each 1000 deaths from this group of diseases, 219 were of males, and 169 of females, under one year; 173 of males, and 143 females, between one and two years; 82 of males to 73 females between two and three; 45 males to 40 females between three and four; and 29 males to 27 females between four and five years of age.

CLASS III. *Diseases of the Nervous System.*—The next diseases which we have to consider are those of the nervous system—viz., cephalitis, apoplexy, paralysis, chorea, epilepsy, tetanus, convulsions, and deaths registered as from “diseases of the brain.” The majority of deaths from these causes are attributed to “convulsions,” a most unsatisfactory nomenclature.

TABLE VI.—*Metropolis, 1843-53.—Deaths from Diseases of the Nervous System.*

Ages.	Under 1.	1—2.	2—3.	3—4.	4—5.	Total under 5.
Males ...	9849	1805	876	511	359	13,400=100
Females...	7480	1637	735	473	275	10,656=79.5
Males ...	40.9	7.9	3.6	2.1	1.4	
Females...	31.1	6.9	3.0	1.9	1.2	100

The per-centages of female deaths in each year were 83, 82, 83, 81, 83, 77, 78, 74, and 73 to each 100 males.

We perceive from Table VI. that 13,400 deaths of males were registered in London from these diseases, against 10,656 of females; or in the ratio of 1000 males to 795 females—a singular and vast disproportion. An examination of the per-centages for each year shows the excess to be very uniform—viz., less than ten per cent; the greatest difference in the rate of death in the two sexes being 100 males to 74 females, and the smallest 100 males to each 83 females. The per-centages of all deaths indicate that, of every 1000 who died under five years of age from these diseases, no less than 720 expired during the first, and 148 during the second, year of life. Of these 720, as many as 409 were males, and only 311 females. These per-centages also prove that comparatively few children above two years of age die in London from nervous diseases.

CLASS IV. *Deaths from Diseases of the Respiratory Organs.*—This group consists of laryngitis, bronchitis, pleurisy, pneumonia, asthma, and deaths registered as from “diseases of the lungs.”

We have here a different class of diseases to any as yet considered, and in which we might expect the rule hitherto obtained to be wanting; but it will be found that these diseases, even although inflammatory, are no exception to the rule.

TABLE VII.—*Metropolis, 1845–53.—Deaths from Diseases of the Respiratory Organs.*

Ages.	Under 1.	1—2.	2—3.	3—4.	4—5.	Total under 5.
Males ...	10,192	5153	2280	1937	515	19,477=100
Females ...	7,617	3070	1313	1112	547	16,719=85.5
Males ...	27.9	15.1	6.3	2.9	1.4	} 100
Females ...	21.1	14.1	6.5	3.2	1.5	

The rate of female deaths to 100 males in each of the different years under consideration, was 86, 85, 89, 87, 91, 84, 89, 82, and 83.

This table shows that of 36,196 deaths from these causes, 19,477 occurred in male children, and 16,719 in females; or in the ratio of 1000 of the former to 858 of the latter. From the annual per-centages we learn that the rate of excess varies less than ten per cent., the largest number of females being 91, and the smallest 82, to each 100 males respectively. This result is much opposed to the opinion ordinarily entertained, and should make us give a more guarded prognosis of inflammatory pulmonary disease when it attacks a male than a female. The per-centages at the different ages show that, out of every 1000, nearly one-half—viz., 490—happened during the first, 292 during the second, 128 in the third, 61 in the fourth, and 29 only in the fifth year; that the greatest excess of male deaths took place in the first year, when there were 279 of males to 211 of females; the next in the second year; and that between two and three, and three and four years, the number of females was in excess of those of males.

CLASS V. *Deaths from Diseases of the Digestive Organs.*—This class includes a large number of diseases, very many of which have but little influence on the rate of mortality. They are teething, quinsy, gastritis, enteritis, peritonitis, ascites, ulceration of intestines, hernia, ileus, intussusception, “disease of the stomach,” “disease of pancreas,” hepatitis, jaundice, “disease of liver,” and disease of spleen. Of these,

teething and enteritis are the two to which the greatest mortality is attributed, about one-half having been registered as due to the former alone.

TABLE VIII.—*Metropolis, 1845-53.—Deaths from Diseases of the Digestive Organs.*

Ages.	Under 1.	1—2.	2—3.	3—4.	4—5.	Total under 5.
Males ...	3321 ...	1568 ...	374 ...	158 ...	123 ...	5544=100
Females...	2402 ...	1459 ...	385 ...	136 ...	122 ...	4504= 81.2
Males ...	33.1 ...	15.6 ...	3.7 ...	1.6 ...	1.2 ...	} 100
Females...	23.9 ...	14.5 ...	3.8 ...	1.4 ...	1.2 ...	

To every 100 males in each of these years, the following numbers of female deaths happened:—87, 85, 81, 84, 81, 84, 77, 73, and 82.

We ascertain from this table that of 10,048 deaths registered under this class, 5544 were of males, and 4504 of females, or 1000 deaths of the former to 812 of the latter; that the proportionate minus of female deaths varied between 868 and 726 to 1000 males. We also perceive that out of every 1000 deaths, 570 occurred during the first year of life, 301 during the second, 75 during the third, 30 during the fourth, and 24 during the fifth. Of the 570 during the first year, 331 were of males, and 239 of females; and of 301 during the second year, 156 were of males to 145 females. In the other years, the difference in the mortality of the two sexes was but slight.

So large a proportion of deaths having been registered from teething, they will be considered separately. It appears that of the above 10,048 deaths, 5086 were stated to have been caused by teething, and 4962 only from all the others. Of the 5086 from teething, 2714 were males and 2372 females, or 882 females to each 1000 males; and of the 4962 from the other diseases, 2830 were males and 2132 females, or 753 females to each 1000 males. We therefore perceive that the mortality from organic diseases of this class was greater in males than in females, not only absolutely, but even relatively, when compared with those from irritative diseases; a result far different from what we might have expected from the known peculiarities of the female sex.

CLASS VI. *Metropolis, 1845-53.—Deaths from Atrophy.*

Ages.	Under 1.	1—2.	2—3.	3—4.	4—5.	Total under 5.
Males ...	3856 ...	743 ...	285 ...	98 ...	68 ...	5050=100
Females...	3422 ...	730 ...	256 ...	124 ...	67 ...	4599= 90.1
Males ...	39.9 ...	7.7 ...	2.9 ...	1.0 ...	0.7 ...	} 100
Females...	35.5 ...	7.6 ...	2.7 ...	1.3 ...	0.7 ...	

In the period embraced by the table, the number of females who died to 100 males in the different years were, respectively 91, 104, 101, 81, 89, 81, 95, 82, and 96.

On examining the per-centages for each year, we perceive that the rate of death in the two sexes varies very considerably—so much so as to make me believe that deaths from many causes are included under this head. Thus we find the rate of death in females to vary between 81 and 104 to each 100 males. We also learn that of 9649 deaths registered as from this cause, 5050 were males and 4599 females, or in the ratio of 961 females to 1000 males. On inspecting the deaths at

different ages, we find that by far the greatest proportion occurs during the first year—7278 of the 9649, or 75·4 per cent. of the whole, being in children under one year old.

CLASS VII. *Deaths resulting from Premature Birth.*—Of all the causes of death, there is perhaps no one in which we should, *a priori*, have expected a more variable rate of death in the two sexes than in the one we are now considering; yet, as we shall see on considering the table, there is no one in which the preponderance of male deaths is more uniformly marked.

TABLE X.—*Deaths from Premature Births—Metropolis, 1845–53.*

Years.	Males.	Females.	Per-centage.	
			Males.	Females.
1845	448	351	100	85·0
1846	569	473	100	83·1
1847	633	514	100	81·2
1848	614	506	100	82·4
1849	671	561	100	83·6
1850	692	519	100	79·3
1851	810	630	100	75·0
1852	835	702	100	84·1
1853	840	635	100	75·6
Totals	6112	4951	100	80·6

We perceive on examining the column of per-centages, that the rate of deaths in females varied between 75 and 85 to each 100 males, that the average was 80·6 to each 100 deaths of males during those years, the total number registered being 11,093, and of these 6142 were males and 4951 females. It is impossible to ascertain the proportionate number in England of the two sexes which are still-born, but the experience of most accoucheurs is, that the preponderance lies on the male side, and the foreign returns quoted in Table II. prove this indisputably.

CLASS VIII. *Deaths from all other Classified Diseases, not included in the previous Tables.*—There are some deaths, the causes of which are not specified; but all deaths from specified causes not included in the classes already considered, are here grouped together.

TABLE XI.—*Deaths from all Causes not included in the other Tables.—Metropolis, 1845–53.*

Years.	Males.	Females.	Per-centage.	
			Males.	Females.
1845	553	392	100	70·9
1846	500	414	100	82·8
1847	583	500	100	85·7
1848	654	574	100	87·7
1849	647	599	100	92·5
1850	642	563	100	90·8
1851	743	642	100	86·4
1852	781	699	100	89·5
1853	748	684	100	91·4
Totals	5851	5087	100	83·3

• As we see from the totals, the number is not very large, considering the great number of diseases of which this class consists—viz., diseases “of uncertain or variable seat,” “of the urinary and generative organs,” “organs of locomotion,” “of the integumentary system,” “malformation;” “sudden deaths, cause unknown;” from privation, want of breast-milk, neglect, cold, and deaths by violence.

Although this class consists of such heterogeneous diseases, yet the rate of death in females, as compared with that of males, is as uniform as most others; for with the exception of 1845, it oscillated only between 82·8 and 92·5 to each 100 males, or nearly ten per cent. The table also shows that of 10,938 deaths, 5851 were of males and 5087 of females, or in the proportion of 833 females to 1000 males.

We shall next pass in review the mortality of London in comparison with that of England and Wales, exclusive of the metropolis. In so doing, we shall not give the gross numbers in the tables, as they have in part been shown before, but the per-centages only, as they afford a sufficient and ready standard of comparison.

TABLE XII.

	England.		London.	
	Males.	Females.	Females.	Males.
Deaths from zymotic diseases	100	98·8	97·1	100
„ tubercular diseases	100	84·9	82·3	100
„ diseases of nervous system	100	76·2	79·5	100
„ „ respiratory organs	100	82·7	85·8	100
„ „ digestive organs	100	83·9	81·2	100
„ atrophy	100	89·0	90·1	100
„ premature birth	100	77·2	80·6	100
„ all other diseases	100	83·3	86·9	100
Totals	800	676·0	683·5	800

From this table we learn that to 1000 deaths of male children, 971 females died in London, and 988 in England, from zymotic diseases; 823 in London, and 849 in England, from tubercular diseases; 795 in London, and only 762 in England, from nervous diseases, being the greatest disproportionate ratio in all the classes of disease. From diseases of the respiratory organs, 858 female children expired in London, and 827 in England, to 1000 males; and from the other classes of disease at the following rates:—Of the digestive organs, 812 in London, and 839 in England; of atrophy, 901 in London, and 890 in England; from premature birth, 806 in London, and 772 in England; and from all other diseases, 869 in London to 833 in England to 1000 males respectively. The most fatal class of maladies to male children is therefore these of the nervous system and from premature birth; and to female children, zymotic diseases.

We next purpose contrasting the rate of death in males and females separately, so as to ascertain the proportionate fatality of each group of diseases in either sex.

From Table XIII. we learn that of each 1000 deaths of males in England, 308 occurred from zymotic diseases, 99 from tubercular diseases, 190 from maladies of the nervous system, 139 from diseases of the

respiratory organs, 58 of the digestive apparatus, 46 from atrophy, 111 from premature birth, and 49 from other diseases. In London the ratios varied from those in all England; the deaths from zymotic and tubercular diseases, also from affections of the respiratory organs, were comparatively in excess, being 348, 128, and 184 respectively; whilst in England those from nervous diseases and from premature birth were considerably in excess, being 190 and 111 in each 1000.

TABLE XIII.—*Per-centages of Deaths from each Cause, to Total Deaths in each Sex.*

Class	Males.		Females.	
	London.	England.	London.	England.
1. Deaths from zymotic diseases	34·8	30·8	38·3	35·2
2. „ tubercular diseases	12·8	9·9	11·9	9·7
3. „ diseases of nervous system 12·7	12·7	19·0	11·5	16·8
4. „ „ respiratory organs 18·4	18·4	13·9	17·9	13·3
5. „ „ digestive organs 5·2	5·2	5·8	4·8	5·6
6. „ atrophy	4·8	4·6	4·9	4·7
7. „ premature birth	5·8	11·1	5·3	9·9
8. „ all other diseases	5·5	4·9	5·4	4·8
Totals	100·0	100·0	100·0	100·0

Of each 1000 female deaths in England, 352 arose from zymotic diseases, 97 from tubercular affections, 168 from nervous diseases, 133 from disorders of the respiratory organs and 56 of the digestive apparatus, 47 from atrophy, 99 from premature birth, and 48 from all other diseases. In London, as compared with England, deaths from zymotic and tubercular diseases, and from disorders of the respiratory organs, were in excess, the same as in the male sex; showing, therefore, that there are certain definite causes in operation which affect both sexes alike, accordingly as they constitute part of a rural or town population.

The ratios in the other diseases are too small to require special mention.

Having discussed the rate of mortality in the two sexes under five years of age, from various groups of disease, we now propose considering the influence of sex on several individual diseases. I have chosen chiefly those of the zymotic class, as they consist of disorders each of which induces very different manifestations of its presence in the human fabric, has special periods in which it runs its course, and, as will be proved, induces death in the two sexes after a tolerably uniform rate. The other classes embrace diseases so similar in their progress, and so allied in their nature, as not to require separate consideration. For instance, what practical advantage would be derivable from considering the mortuary rate of the two sexes in bronchitis, pneumonia, or pleuritis separately, or of the various diseases of the brain, &c. ? Does any one of these diseases usually produce death *per se*, and is the mode of registration such as to enable us to make this separation ? To both of these queries we answer no, and therefore do not purpose making an individual analysis of either. The first disease we shall consider is small-pox, the characteristics of which, as well as of the other eruptive forms, are so marked as not to be mistaken.

TABLE XIV.—Deaths from Small-pox.—Metropolis, 1845-53.

Ages.	Under 1.	1—2.	2—3.	3—4.	4—5.	Total under 5.
Males ...	884 ...	548 ...	431 ...	351 ...	247 ...	2461=100
Females...	827 ...	568 ...	420 ...	351 ...	228 ...	2394= 93·2
Males ...	18·2 ...	11·3 ...	8·9 ...	7·2 ...	5·1 ...	} 100
Females...	17·1 ...	11·7 ...	8·6 ...	7·2 ...	4·7 ...	

The rate of female deaths in different years to each 100 males was 90, 101, 106, 91, 94, 114, 106, 92, and 86.

The ratio of female deaths to those of males is seen to be very different to that from any other disease or group of diseases we have hitherto examined; for in four out of the nine years, the number of female deaths exceeded those of males by 1, 6, 6, and 14 per cent. respectively. It was formerly pointed out that the mortality from zymotic diseases, as a class, occurred at a very different rate in female children to that from any other. The variation in the rate of death is also very large—nearly 30 per cent., instead of from 10 to 15 per cent. Thus, the per-centage shows that in one year there were 86 deaths only of females to 100 males, whereas in another there were 114 to 100 male deaths, the average for the whole number of years being 93 females to 100 males.

It will be seen on inspecting the per-centages of total deaths, that this disease is most fatal during the first year of life, both to males and females, and that the ratio gradually diminishes in each year as age advances, the greatest difference in the mortuary rate between the two sexes occurring in the first year of life, the variations in the other years being unimportant.

The total number of deaths registered in three years from this disease was 4855; and of these, 2461 were males and 2394 females, of which 35·3 per cent. occurred during the first year of life.

We shall now pass on to *Measles*. This disease proved far more fatal during these years (1845-53) than small-pox, having destroyed 10,024 children under five years of age. Of these, 5066 were males and 4958 females, or 970 females to each 1000 males.

TABLE XV.—Metropolis, 1845-53.—Deaths from Measles.

Ages.	Under 1.	1—2.	2—3.	3—4.	4—5.	Total under 5.
Males ...	931 ...	1945 ...	1167 ...	667 ...	356 ...	5066=100
Females...	756 ...	1891 ...	1281 ...	660 ...	370 ...	4958= 97·8
Males ...	9·3 ...	19·4 ...	11·6 ...	6·7 ...	3·5 ...	} 100
Females...	7·5 ...	18·9 ...	12·8 ...	6·6 ...	3·7 ...	

To each 100 male deaths in these years, 105, 88, 96, 96, 96, 97, 104, 87, and 97 of females happened.

During the nine years embraced by this inquiry, we perceive that two present an excess of female deaths over those of males, the range in the mortuary rate, being very large, varying from 87 females to 100 males in one year, and 205 females against 100 males in another; the mean rate being 978 females to 1000 males.

Measles presents another peculiarity as compared with small-pox—the second instead of the first year being that in which it is most

fatal next the third, then the first, then the fourth, and lastly, the fifth year of life. But it agrees in proving comparatively more fatal to males in the first year. In the third and fifth years there was a preponderance of female deaths, in the former as much as 1·2 per cent. of the total deaths.

Scarlatina.—This, which is one of the most fatal of all the zymotic class of diseases, produced a mortality of 11,562 children in these years.

TABLE XVI.—*Metropolis, 1845-53.—Deaths from Scarlatina.*

Ages.	Under 1.	1—2.	2—3.	3—4.	4—5.	Total under 5.
Males ...	641	1327	1571	1468	1089	6096=100
Females ...	476	1115	1456	1367	1022	5466=89·7
Males ...	5·5	11·5	13·6	12·7	9·4	} 100
Females ...	4·1	9·9	12·6	11·8	8·9	

To each 100 male deaths the following number of females happened in these different years:—89, 87, 88, 90, 85, 94, 86, 87, and 100.

The table shows, that of the above number of deaths, 6096 were of males and 5466 of females, or 89·7 females to each 1000 males. The proportionate mortality in females varied between 86 and 100 against 100 males respectively, being a smaller range than of the other zymotic diseases just considered. It also differs from them in the age at which it proves most fatal, the third year being that in which the mortality both of males and females is greatest. The proportions at the different ages are as follows: 26·2 per cent. in the third year, 24·5 per cent. in the fourth, 21·4 per cent. in the second, 18·3 in the fifth, and only 9·6 per cent. in the first. The greatest difference in the mortality of the two sexes is to be found in the second year, and not in the first; the next largest in the first year, then in the third, after that in the fourth, and the smallest in the fifth.

The next disease to be considered is *Hooping Cough*.

TABLE XVII.—*Metropolis, 1845-53.—Deaths from Hooping Cough.*

Ages.	Under 1.	1—2.	2—3.	3—4.	4—5.	Total under 5.
Males ...	2708	2529	1226	687	313	7493=100
Females ...	2826	3046	1724	915	466	9007=120·2
Males ...	16·4	15·4	7·4	4·2	2·1	} 100
Females ...	17·1	15·5	10·5	5·7	2·7	

To 100 deaths of males in each of these years, the following numbers of females happened:—130, 125, 118, 118, 117, 110, 125, and 122.

A glance at the per-centages reveals a very different rate of female mortality, as it will be seen that in no one instance were the deaths of males greater than those of females; but, on the contrary, those of the latter sex were far the largest. This disease, during the years embraced by this inquiry, was more fatal to children under five years of age than any other—16,500 having died from it, of which no less than 9007 were females, and only 7493 males, or at the rate of 120·2 females to each 100 males. The largest disproportion was 130 female to 100 male deaths; and the smallest, 110 to 100 males; the average being 120·2 female to each 100 male deaths. The disease

also varies from every other, in the highest male and female mortalities having happened in different years of life; the highest rate of male deaths taking place in the first year, and that of females in the second. We also perceive that the two first years of life are those in which the disease is most fatal, 33·5 per cent. of all the deaths having supervened in the first year, and 33·9 in the second, against 17·9 in the third, 9·9 in the fourth, and 4·8 in the fifth.

TABLE XVIII.—*Metropolis, years 1845-53.—Deaths from Diarrhœa.*

Ages.	Under 1.	1—2.	2—3.	3—4.	4—5.	Total under 5.
Males ...	5719	1418	361	120	77	7725=100
Females...	4792	1394	317	127	53	6683= 86·5
Males ...	39·7	10·0	2·5	0·9	0·5	} 100
Females...	33·3	9·6	2·2	0·9	0·4	

To 100 male deaths in each of these years, there occurred the following number of females:—92, 90, 88, 89, 88, 84, 87, 83, and 81.

We perceive that of 14,408 deaths from this disease, 7725 were of males and 6683 of females, or 865 females to each 1000 males; and also, that in no one instance was the total mortality for any one year of females equal to that of males; but, on the contrary, that the proportions varied between 81 and 92 females to 100 males. The rate of death, both for males and females, is very much larger during the first year of life than in any other, as we see that of the 14,408 deaths, no less than 10,511, or 73·0 per cent., happened during that period, and 19·6 per cent. in the second year. The disease was not only most fatal to both sexes during the first year, but also in a far larger ratio to males than females, the male deaths having exceeded those of females by 6·4 per cent. of the whole number. The difference in the mortality of the two sexes was not great after the second year.

The last disease which we shall examine is *Convulsions*. By considering this separately, it must not be considered that we believe convulsions to be a disease *per se*; but so very large a number of deaths are referred to this cause, and so large and so uniform a disproportion exists in the mortality of the two sexes, that we did not feel justified in passing it by, more especially as it shows either that convulsive diseases are more lethal to males in infancy than to females, or else more frequently attack children of the female sex.

TABLE XIX.—*Metropolis, years 1845-53.—Deaths from Convulsions.*

Ages.	Under 1.	1—2.	2—3.	3—4.	4—5.	Total under 5.
Males ...	8559	983	403	183	97	10,225=100
Females...	6504	940	367	186	81	8,078= 79
Males ...	46·9	5·4	2·2	1·0	0·5	} 100
Females...	35·5	5·1	2·0	1·0	0·4	

To 100 male deaths in each of these years, 81, 84, 83, 79, 79, 77, 80, 73, and 73 female deaths happened.

The total number of deaths registered as having been caused by convulsions in the years 1845-53, is 18,303; and of these, 10,225 were of males, 8078 of females; or 790 females only to each 1000 males. On glancing over the per-centages, we perceive that the ratio of female

deaths was far less than of males: the nearest proportions were 84 females to each 100 males, whilst the greatest variation was 73 females to 100 males. The number who died in the first year of life was much larger than at any other age, 8559 male and 6504 female deaths, or 46·9 per cent. of males to 35·5 per cent. of females, having been registered, making a total of 15,063 children, or 82·4 per cent. of the whole number. The difference in the relative mortality of the two sexes was but small at the other periods of life under consideration.

It will perhaps be useful to include the results of this examination of individual diseases in one table.

TABLE XX.—*Metropolis, years 1845-53.*

	Number of deaths from each disease.	Ratio of deaths in males and females.		Age at which the greatest mortality occurs.		
		Males.	Females.	In both sexes.	Males.	Females.
Small-pox ...	4855	1000	932	1st year	1st year	1st year
Measles	10,024	1000	978	2nd year	2nd year	2nd year
Scarlatina	11,562	1000	967	3rd year	3rd year	3rd year
Whooping-cough	16,500	1000	1202	2nd year	1st year	2nd year
Convulsions ...	18,303	1000	790	1st year	1st year	1st year
Diarrhoea	14,408	1000	865	1st year	1st year	1st year
Teething	5086	1000	882	1st year	1st year	1st year

The peculiarities may be briefly enumerated as follows:—Of all the zymotic diseases, whooping cough was the most fatal in the years 1845-53, and was more fatal to female than to male children, being, therefore, an exception to the otherwise universal law, that during the first year of life, more males than females die from all the great groups of maladies with which the human race is afflicted. The largest proportion of males died in their first year of age, and of females in their second; the disease being most fatal in both sexes conjointly in the second year. Small-pox is the least fatal of the exanthemata, and produces the greatest mortality in the first year, measles in the second, and scarlatina in the third; the order of fatality being that in which the diseases are enumerated. Convulsions, diarrhoea, and teething are all most fatal in the first year of life, the former (convulsions) producing the greatest excess of male deaths.

In conclusion, we would again express our belief that male infants are predisposed to disease in a far greater ratio than females, especially during intra-uterine life; that this predisposition, which in extra-uterine life is most marked during the first month, gradually diminishes after the child ceases to obtain its nutrition direct from its mother, and is almost removed shortly after the ordinary age of weaning—viz., at one year and a quarter. From these considerations we infer that the greater mortuary rate of males during the first years of life depends on some influence derived from one or the other, or both, of its parents, but most probably chiefly, if not entirely, from the mother. It cer-

tainly might arise from some unknown influence of the child's own nervous system; but this is scarcely probable, for as age advances, and the sexual characteristics become markedly developed, the disproportionate mortality of males ceases, and in the period between ten and fifteen years of age, gives place to an increased rate of death in females. The facts adduced in this paper may not warrant these conclusions; for it may only be a coincidence that the period of greatest male mortality corresponds with the periods of gestation and lactation. The greater longevity of females certainly points to another vital difference in the sexes; and it may perhaps be true that one cause (greater vitality of the female sex) induces the large differential mortality which we have shown to exist.

ART. II.

On the Pathology of Cancer of the Stomach. By WILLIAM BRINTON, M.D.,
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(Continued from No. 37, p. 228.)

IN alluding hereafter to the possible healing of cancers of the stomach, I may take the opportunity of doing more justice to what Rokitsansky and Dittrich have advanced respecting it. As regards the simulation of an ordinary ulcer, the chief facts I have collected are one or two instances in which, concurrently with what has offered every appearance of a simple ulcer, with a but slightly thickened (or even healthy) margin of mucous membrane, there have been suspicious (if not absolutely cancerous) deposits in the liver and lungs, such as seemed to indicate secondary cancer. Unfortunately, I have had no opportunity of a minute examination of these ulcers and deposits, and am therefore obliged to leave the question in its present form;—a vague (though important) suspicion that may perhaps be useful in stimulating further inquiry.

As regards mere combinations of cancer and ulcer, little need be said. Since the gastric ulcer has no protective influence against cancer, we need scarcely wonder to find that its scars are often found in stomachs that have subsequently been attacked by the deadlier malady. The coincidence of the open ulcer with cancer is scarcely less frequent. But, as might be expected, in these cases also it is the cancer which is invariably added to the ulcer, and never *vice versa*—the ulcer to the cancer. Indeed, the formation of a simple ulcer in some part of the stomach unaffected by the cancerous growth, is, so far as I am aware, a circumstance quite unknown in the history of gastric cancer. Nor is there a single authenticated instance, in my knowledge, in which an ulcerous stomach has been attacked with malignant disease in some other part of its cavity, without the ulcer itself becoming implicated to at least the extent of having its base or edges infiltrated with the new deposit. More frequently, indeed, it is these parts alone which become the site of the cancerous deposit. An ulcer, for example, which has lasted many years, suddenly ends in death;—the necropsy revealing considerable cancerous infiltration in the thickened margin

of the ulcer, or in that chronic thickening of the walls of the stomach which often extends some distance beyond this margin; or a fungous mass of comparatively recent medullary cancer springing up from the centre of the excavation. In rare cases, the same marginal cancerous infiltration seems to have occurred after the original ulcer has perforated the stomach; and has thus affected the parietes of the chronic abscess to which the accident under favourable circumstances gives rise. In short, there appears to be scarcely any limit to the varieties of this kind which may occasionally occur. And, on the whole, the relative frequency of these combinations is quite sufficient to suggest that the presence of such an open ulcer does occasionally in some measure provoke the development of the cancerous cachexia; as well as (more frequently?) aid in determining the deposit of cancer in this particular organ.

It may be useful to compare with the gastric cancer, a rare disease which, though not known to be ever combined with it, occasionally simulates its appearances to at least a sufficient degree to be mistaken for it. And though such an error is practically of far less importance than that of confounding cancer and ulcer, still the pathological distinctness of cancer and "hypertrophy" seems to be just as complete, and the typical course of their symptoms just as diverse, as is the case with cancer and ulcer.

The chief characters which distinguish this lesion from scirrhus may be briefly enumerated as follows. In marked specimens, the change generally involves a considerable extent of the stomach (often the whole organ) in a moderate thickening which, while it allows the three coats to be still distinguished and separated from each other, frequently increases their bulk in a tolerably equal proportion. The uniform expanse of stomach involved in the change is yellow, tough, and elastic; instead of having the peculiar pearly-white and gristly appearance and section of cancer. The muscular tissue is almost always discernible—often even hypertrophied in the earlier stages of the disease. And not only does the perfectly homogeneous deposit offer none of those varieties which commonly mark the later progress of a cancerous deposit in the shape of colloid and medullary matter surrounding the original and central scirrhus, but its microscopic examination shows a complete absence of anything like the characteristic cells of cancer, or at most a few spindle-shaped cells of fibrous import scattered sparingly throughout a mass of laminated (but scarcely otherwise organized) exudation. Of course, the absence of secondary cancer in other organs would aid the diagnosis of this benignant lesion, though its mere histology would generally be sufficiently conclusive. Ulceration, too, is less frequent and extensive than in cancer. Finally, the pathological contrast of the two diseases is rendered complete by cases which affirm that the lymph thus deposited by a kind of cirrhotic (?) inflammation around the vessels of the stomach, occasionally undergoes a development into cartilage—rarely even into bone.*

The presence of *secondary cancerous deposits* in other organs is a very frequent complication of cancer of the stomach. Out of 214 cases I have

* It would lead me too far from my present subject to pursue this topic further, or to analyse these cases. And without definitely urging the adoption of the term "cirrhosis," I will only add, that the above characters sufficiently show how little such a change is really akin to "hypertrophy."

collected, 96, equal to 45 per cent. (or nearly one half), exhibit this complication. To these we may probably add Dittrich's* cases as affording 160 cases with 82 of secondary deposit; as well as Lebert's, 32 in 57. In all, therefore, we obtain 437 instances of gastric cancer, with 210 of secondary cancer: a proportion equivalent to 48 per cent.

The comparative liability of the different varieties of cancer to be accompanied by secondary deposits, I deduce from 81 of the above 96 cases; in which 81, the primary cancer of the stomach is divided amongst the scirrhus, medullary, and colloid species; in the numbers of 51, 17, and 13 respectively. Comparing these numbers with the relative frequency of these three forms (as deduced in page 297), we obtain the liability of each to be associated with secondary cancer as the respective fractions $\frac{51}{136}$, $\frac{17}{32}$, $\frac{13}{57}$; or, .39, .53, and .76. These numbers nearly correspond with the simpler figures of $\frac{3}{7}$, $\frac{1}{2}$, and $\frac{2}{3}$. In other words, nearly one-half the cases of gastric scirrhus are associated with a deposit of secondary cancer in some other organ of the body: and this proportion, which is increased by one-third in the case of medullary cancer, is doubled in that of colloid. Such facts well illustrate one at least of the causes of that greater or more direct fatality of the two latter forms which has long been ascribed to them.

Respecting the variety of cancer which forms the secondary deposit, I have no large and exact numerical data to offer. In a majority of instances, however, it is medullary. Sometimes we meet with secondary cancer of the liver or peritoneum, which affects the areolar arrangement of colloid: and a similar arrangement, which is sometimes met with in the glands of the belly, is evidently due to a differentiation akin to that of the original structures.

Among the organs which form the seats of these secondary deposits, the liver claims that precedence which might be expected. Out of 431 cases collected by me, 105 (or about 25 per cent., or $\frac{1}{4}$ th) exhibited a cancerous deposit in the liver: a proportion at least twice as great as that of deposit in the lymphatic glands adjoining the stomach, and thrice as great as that of secondary pulmonary cancer.

In many of these cases, the presence of cancer in the liver coincided with its deposit in other organs. The only exact numbers I have been able to obtain in respect to this further complication, are derived from 47 instances of secondary hepatic cancer, occurring in 214 cases of cancer of the stomach. Out of these 47 instances, such a coincidence was present in 13: nine times in the glands or peritoneum adjacent to the organ, twice in the kidney, and once in each of the following organs—the ovary, pancreas, intestine, spleen, thoracic glands, and lung. The immediate proximity of the abdominal glands and peritoneum renders it scarcely important to lay any stress on their frequent share in the hepatic mischief. But of the remaining sites of deposit, it is interesting to notice that the lung is affected with only $\frac{1}{4}$ th or $\frac{1}{5}$ th of its average frequency; while the abdominal viscera are involved about $1\frac{1}{2}$ times as frequently as their similar average.† In other words, it seems as if the secondary

* Loc. cit. In his 160 cases, Dittrich mentions 43 as being combined with cancer of the liver, 22 of the diaphragm, 9 of the lungs, and 9 or 10 of the retro-peritoneal glands and other abdominal organs.

† Their averages are stated below.

deposit of cancer in the liver somewhat increases the risk of other abdominal viscera sharing in the deposit; while it much more decidedly diminishes the chance of any pulmonary ingrafting of the disease.

In the reports I have brought together, it is sometimes so difficult accurately to distinguish secondary deposits in the lymphatic glands that adjoin the stomach, from similar deposits in and between the layers of peritoneum that form the gastro-hepatic and greater omenta, that it has seemed best to group them together. Adopting this arrangement, and adding to them Lebert's 57 cases, we obtain 271 cases, in 69 of which some of these structures were thus involved. This number corresponds to a per-centage of about $25\frac{1}{2}$ per cent., or rather more than one-fourth.

The lungs seem to be affected about 1 in 12 times, or in $8\frac{1}{6}$ th per cent. of the total number of cases of gastric cancer. This estimate is based on 35 and 431 such cases respectively.

But in adducing these numbers, it becomes imperative to consider some circumstances which materially detract from their value; the more so that even in doing so, they furnish no data for any specific correction of the deficiencies they indicate.

And firstly, these numbers omit all mention of a morbid change in the pulmonary tissue which, in the shape of pleurisy or pneumonia, or both these diseases in combination, occurs so frequently in connexion with cancer of the stomach, that it is impossible to doubt its general significance in relation to the primary disease. The lungs offer in some part of their mass—almost always in the lower lobes, more frequently (I think) in the left than the right organ—a kind of reddish-grey hepatization; which generally extends to the nearest pleural surface, and gives rise to more or less adhesion here. The adherent tissues are united by a small quantity of lymph, of very moderate tenacity, and pasty (rather than fibrinous) consistence. And the pleural cavity itself is often occupied by a variable amount of serum, much of which, however, is doubtless in some cases effused during the very act of dying. This pleuro-pneumonic complication seems to be no very unusual cause of death.

Another (and still more frequent) complication of gastric cancer, relates to the association of what is called "tubercle" with the primary disease—an association of such remarkable frequency, as to raise suspicions similar to those already mentioned in speaking of the pleuro-pneumonic complication.

It is the more important to institute some inquiry into the real foundation for such suspicions, inasmuch as they are intimately connected with the general pathology of cancer and tubercle themselves. And if such an inquiry serves only to point out any sources of error in the facts on which are built the existing doctrines relative to these two comprehensive forms of disease, it will probably be regarded as not altogether useless.

The incongruous ideas prevalent with respect to these two varieties of blood-krausis, may perhaps be well illustrated by the fact that, while Rokitsky has long ago laid down the proposition that they may almost be regarded as mutually exclusive of, or incompatible with, each other, so large a number of cancerous necropsies reveal tubercles in the lungs or other parts of the body, as almost to confirm, relatively to individuals, the

propositions stated by Dr. Christison* relatively to families: namely—that “the malignant diseases belong to the scrofulous constitution;” and that “consumption in early life, and malignant disease at a later age, seem not infrequent in the same family.” In short, it would seem that not only do the two *krases* attack similar constitutions and temperaments, but that in a vast number of instances they merge into each other in one and the same individual; and in a smaller but still not inconsiderable number, their respective products are present in such a quantity and state as conclusively to indicate a simultaneous—if not indeed a connected—activity of both these diseases.

Without, however, diverging from the subject of the present essay to criticise the view thus concisely put forward by Dr. Christison, I venture to believe that the more carefully the two diseases are analysed by the light derived from pathological anatomy, the more conclusively will Rokitsansky's dictum be established. With much to suggest caution in the implicit reception of any wide theory of either *krasis*, the few conclusions respecting the mutual relation of cancer and tubercle to which I have been led by the study of cancer of the stomach, might almost be summed up in the very words of this eminent pathologist. At any rate, they are so perfectly compatible with his brief but masterly outlines of these diseases, that, while I feel it would be presumptuous in me definitely to link them with the authority of his name, I would suggest them for the consideration of those whose opportunities of pathological research may not have supplied them with all the requisite materials for a commentary on Rokitsansky's text.

Firstly, as to the mere coincidence of the products of the two diseases in the same person. The comparative fatality of the two diseases, and the different epochs of life which they specially affect, are circumstances which, apart from all others, sufficiently explain why cancer follows tubercle, but tubercle does not follow cancer. And the frequency with which arrested or absolute deposits of tubercle are found scattered in sparing quantity throughout the lungs of persons dying of cancer, is a fact which in itself not only fails to establish any essential connexion between them, but does not even militate against Rokitsansky's view. However different may be the numbers by which different observers represent the frequency of such deposits in necropsies of persons dead from all causes indifferently, there can be no doubt that their range (30 to 70 per cent.?) quite equals anything as yet established respecting the frequency of similar deposits in cancer. Hence all that we are really entitled to infer is, that the deposit of tubercle in the earlier epochs of life does not afford any valid protection against that of cancer at a subsequent period: a proposition which few would question, and to which Rokitsansky nowhere either expresses or implies a denial. “But,” it might be suggested, “granting that the tubercular *krasis* of early life does, in more or less frequent instances, diminish and disappear as age advances, can we claim to distinguish these instances with all that accuracy that would be necessary to justify us in accepting its exchange for a disease which is assumed to be incompatible with it? In other words, can we always predicate

* Suggestions to Medical Referees of Standard Life Assurance Company, pp. 11, 12. Edinburgh, 1852.

the exact age and condition of a deposit in respect of its progress or regress, much more the extinction of that krasis by which (in a rather indefinite and subjective way of speaking) the deposit is assumed to be produced?"

In attempting a reply to such a question, I shall not even allude to the various weighty arguments that might be adduced from the general pathology of the two diseases, but shall confine myself exclusively to the mere histology of their products, as illustrated by cancer of the stomach and its complications.

In the first place, I may briefly state that it is by no means impossible to confound some cases of secondary cancer, of the lungs with ordinary tubercle in the earlier stages of its deposit, and at the commencement of its suppuration and softening. A large proportion of the secondary cancerous deposits that involve the lung, possess either a firm and cartilaginous texture akin to that of ordinary scirrhus, or a somewhat less dense (but still tolerably firm), white, solid appearance, that can scarcely be mistaken for either the miliaary or caseous form of ordinary tubercle. But in less frequent cases, the cancerous deposit, even when equally discrete and scanty, undergoes a process of softening and suppuration which can sometimes be scarcely distinguished, in certain of the small spherical masses in which it is deposited, from the similar appearances presented by tubercle. Nor does even the microscope always afford a definite decision. As a rule, the medullary mass of which such secondary cancerous deposits are composed, may be easily shown to consist of scarcely anything but a vast number of cytoblasts, or minute cells, which occasionally distend the lobules of the lungs so as to afford a complete demonstration of their arrangement; while in tubercle we find, in addition to what are often characteristic differences in the cells themselves, a comparative preponderance of the unorganized or amorphous constituents, which is, on the whole, even more distinctive of the nature of the mass. But occasionally these grounds of distinction altogether fail us. In such instances the process of softening itself breaks down the structure of the cancerous deposit to a degree which sometimes leaves scarcely more of the malignant cell-growth that formerly distended the pulmonary lobules than might be readily mistaken for the epithelium so plentifully found in recent (even if caseous) tubercle. Indeed, the cancerous deposit of the lung sometimes so closely imitates the structure of the normal epithelium of the pulmonary lobules, that the individual cells, if seen apart from each other, would probably deceive even an experienced histologist. In short, I have no hesitation in stating that I have seen cases in which, for all practical purposes, it might fairly be said that the microscope, even while indicating strong suspicions of the truly cancerous nature of a deposit which at first sight closely resembled tubercle, could scarcely have decided the question but for the aid afforded it by the symptoms and history of the disease, and the appearance witnessed in other parts.*

*. An instance which may well illustrate these considerations was contributed by the author to the seventh vol. of the *Transactions of the Pathological Society*. An old omental hernia had become the seat of a cancerous degeneration, of which the patient (a young woman) ultimately died, after symptoms of slight peritonitis and indistinct pulmonary mischief. The cancerous nature of the deposit in the lungs could scarcely be regarded as decided

It is impossible to doubt that not only were all these points thoroughly considered by Rokitsansky before coming to the conclusion already referred to, but that that conclusion was especially intended to sum up and contain them. Indeed, he specified a variety of "croupy tubercle of the lung, which occurs during the inflammation and suppuration of cancer, as a result of the cancerous degeneration of the fibrin; and which is distinguished by its whitish colour, its soft glutinous consistence, and by its breaking up into a creamy whitish ichor." But, so far as I have seen, there is every reason to suppose that it is *not* as a croupy tubercle that this mass is originally deposited: that, on the contrary, it is neither more nor less than pulmonary deposit of secondary cancer, consisting originally of cell-growth. In favourable specimens, the various masses of this cell-growth may be seen offering all the various stages of this change in one and the same lung: the smaller nodules white, dense, or even semi-cartilaginous; the larger, it may be, softened in their centre, or even completely broken down, and already partially emptied through a neighbouring bronchus. And instances are not wanting which seem to indicate that—though it is easy to imagine that the free access of air to such pulmonary deposits constitutes a chief cause of the proneness to suppuration of this form of secondary cancer, as contrasted with other and similar deposits in less exposed organs—still the immediate and effective impulse to the process of softening is given by the perishing of the original lung-tissue, which is cut off from the sources of its nutrition by the adventitious mass of cells that surrounds and encloses it.

It is not for me to judge how much either of novelty or truth this modification of Rokitsansky's views possesses. But I venture to believe that careful inquiry will in great measure confirm it. In any case, I think few unbiassed observers could study the pulmonary appearances of a series of cases of gastric cancers, without coming to the alternative—either that the two diseases really have that exclusive relation to each other which Rokitsansky deduces, or—what is at least as startling a conclusion—that they have an intimate causal relation, such as has never hitherto been suspected. The frequency of their apparent coincidence demands an explanation of one kind or the other.

Want of space forbids me to pursue this digression any further; or to attempt (did any facts warrant me in doing so) to define the exact relation of this peculiar form of pulmonary cancer with the pleuro-pneumonia, or with the obsolete tubercle, before referred to. And in dismissing it, I need hardly say that the caution I have suggested with respect to the histological evidence sometimes furnished by the microscope in such cases, is not in any degree intended to depreciate the value of this indispensable means of research, but rather to guard against the errors into which a hasty and imperfect reasoning on that evidence, or an exclusive

by the mere microscopic examination. But on a comparison of this deposit with the primary disease and with some of the implicated lumbar glands, little doubt could be entertained. The severity of the general symptoms, which was quite disproportionate to the local mischief detected, had raised the same suspicion during life, and of course helped to confirm it after death. The only mass of pulmonary deposit which reached the size of a hazel-nut, had softened and suppurated in its centre; and would evidently have been emptied by expectoration, had the patient lived a little longer.

† *Op. cit.*, vol. i. pp. 422, 424.

attention to it, would occasionally lead us. If ever the disease now regarded as a single one under the name of pulmonary tubercle, should be distinguished into several different maladies—a contingency which seems by no means improbable—it is difficult to avoid the suspicion that *clinical* research will be at least as instrumental in this result as any more morbid anatomy.

The other organs which have been the seat of secondary deposit, scarcely deserve more than a mere enumeration. The intestine was thus affected in 7 out of 431 cases: twice in the small intestine, twice in the colon, and thrice in the rectum. The same number also affords six instances of deposit in the ovary; and three in the uterus, spleen, and pancreas. The kidney, the bladder, and the ribs, were affected in two instances. And finally, the following organs only appear to have been involved once in 431 cases: the vertebrae (fourth lumbar), the sternum, the humerus, the supra-renal capsule, the thoracic duct, the seminal vesicle, the diaphragm,* and the pericardium. Among rarer forms of secondary deposit, we may allude to the obstruction of the vena portæ by a soft cancerous mass; a condition present in three or four of the above cases. This generally coincides with the presence of a similar deposit in the liver, and, for obvious reasons, is almost always accompanied by much ascites.

The remaining pathological phenomena of gastric cancer may be next briefly adverted to, in the usual order of their occurrence.

The *obstruction* produced by a cancerous thickening of the gastric parietes, often gives rise to a variable degree of one or more of the following results:—hypertrophy of the muscular coat, dilatation of the cavity of the organ, or contraction.

The *hypertrophy* is a change which really deserves this title, inasmuch as it essentially consists of an increased growth of the muscular fibre-cells, and in favourable specimens can be seen to be entirely limited to such a change. The calibre of the stomach being constricted by the tumour, an increased effort is required for the propulsion of its contents; and this addition to its function necessitates (and indeed brings about) an unusual development of its structure. The thickened muscular coat retains, however, its normal texture; its areolar bundles certainly appear somewhat more distinct and larger than usual; but their size and strength, in proportion to the true contractile tissue, remain unchanged. The fibres themselves are perhaps rather redder and darker than normal; but even this alteration may fairly be referred in part to the enlargement which their bundles have undergone.

The above purer form of hypertrophy is precisely identical with the condition that may often be seen in the muscular fibre adjoining (and especially behind) the cicatrix of an ordinary gastric ulcer. Like the latter, too, it may extend for a variable distance through the organ. It is usually limited to the neighbourhood of the pyloric region, which the cancerous deposit especially affects.

Its deficiencies and complications may many of them be explained by the circumstances under which they occur. In the softer varieties of

* Apart from mere continuity of the adherent diseased mass, which occurs very frequently; (according to Dittrich, 22 times in 160 cases).

cancer, and in tumours of rapid growth, such hypertrophy is generally indistinct or even absent. In instances where the deposit is traceable by no very abrupt line of demarcation into the unaffected part of the stomach, it is often less marked; or is accompanied by such thickening of the arcular septa that divide the muscular bundles, as sometimes to render it very difficult for the naked eye to discern how much of the alteration evinced by these structures in bulk and colour, is due to mere hypertrophy, how much to their implication in the cancerous disease. On the whole, the most marked degree of this hypertrophy is scarcely ever found, save in conjunction with a hard deposit, of slow growth, and possessing a tolerably abrupt edge towards the thickened muscular coat.

Dilatation generally accompanies the above hypertrophy, and is rarely met with in its complete absence. Moderate degrees of either of these associated changes are, of course difficult to verify. And this difficulty is increased by the circumstance (too often, perhaps, overlooked in post-mortem examinations) that these two appearances are mutually convertible. In other words, the mere splitting up of a moderately distended stomach will sometimes allow what appears to be marked dilatation, to merge into what is evidently just as marked hypertrophy, by a simply passive contraction of the muscular coat:—a fact which, however usefully it may illustrate some of the mechanical relations of these two states, ought to render us cautious not to exaggerate the real degree of either by calculating their total and joint amount as their sum instead of their difference.

It is probable that a very large proportion of cases of cancer of the stomach offer both these states in a moderate degree. But I think the proportion mentioned by Lebert (1 in 4) as evincing a “notable dilatation,” must be in part explained by the variable estimates which anatomists adopt respecting the average size of the organ. At any rate I believe that such a proportion could only have been deduced from the cases I have collected by including many instances in which the stomach was scarcely at all larger than a full meal would have rendered it in perfect health. Of excessive dilatation beyond any such degree, the records of 214 cases afford me only 13 instances, a proportion equivalent to 6 $\frac{2}{3}$ per cent. In every one of them the pylorus was the seat of the tumour. And even with respect to these extreme instances of dilatation, I venture to think that, as a rule, it is very rare for cancer to bring about a degree of distension at all approaching to the maximum of this state, which is sometimes witnessed as the result of contraction of the cicatrix of a pyloric ulcer.

The *contraction* which is sometimes found in cancer of the stomach, is very rarely connected with any true hypertrophy of the muscular coat. It may be regarded as of two kinds: each depending on a different process; and each (we may add) finding its parallel in another disease of the stomach. In some cases it is the physical result of a specific pathological phenomenon; a slow shrinking or contraction of the scirrhous mass which occupies a large portion of the parietes of the stomach; constricting and diminishing its cavity in the same way as the contracting tissue of that chronic or cirrhotic inflammation which generally attacks the organ with even greater diffuseness. In other cases, in which the

tumour occupies the cardiac orifice of the stomach, and is occasionally limited to it, the stomach contracts (just as it sometimes does when an ulcer encircles the same aperture) simply because the constant regurgitation which this occlusion produces, entirely prevents the cavity of the stomach from undergoing its normal distension by receiving any quantity of contents. Here much of the contraction is temporary, and may be readily removed by artificial dilatation of the stomach. In rare instances both these sources of contraction are combined.

As regards its frequency, extreme contraction is far less common than dilatation. The 214 cases mentioned, only include 3 instances of contraction; of which 2 seem chiefly referrible to the situation of the tumour at the cardiac aperture: and the remaining one appears to have been due to contraction of a scirrhus mass that engaged the greater part of the stomach.

The ulceration that generally engages the cancerous deposit has already been alluded to, both as regards the local changes by which it is introduced, and the variable admixture of suppuration and sloughing by which it is often accompanied. Its remaining peculiarities require little notice. That it is rarely or never arrested and repaired, the known features of cancer would be sufficient to inform us. That, as a rule, death intervenes before any very large extent of mucous membrane has been devastated by its extension, is equally explicable.

The sequelæ of cancerous ulceration evince a marked contrast with those seen in the ulcer of the stomach. Out of 507 cases, there are 21 cases in which perforation had taken place, with its usual result of peritonitis, rapidly ending in death. In 4 of these 21 cases, however, the contents of the stomach were not effused into the general cavity of the belly, but into an intermediate cavity, corresponding to the sac of the omentum, and bounded by the adherent viscera that enclosed this sac. In 10 other cases the accident of perforation was shown to have been imminent by the necropsy; and had probably so far taken place, as to have allowed that leakage of the contents of the stomach to which the fatal suppurative peritonitis seemed due. As regards fistulous communications, the same number include one instance in which an abnormal opening of this kind led from the cancerous stomach to the anterior wall of the belly: one in which its cavity was thus thrown into communication with that of the jejunum; and no less than 11 in which the transverse colon was the seat of a similar aperture (twice by an intermediate cavity formed exclusively of cancerous deposit).

Each of these results is in striking contrast with its respective parallel in the ulcer of the stomach. In gastric cancer, the perforation would seem to be far less frequent, the per-centage being from 4 to 6 instead of 13 (or about 1 to 2 or 3). While conversely, the formation of a fistulous communication between the stomach and colon occurs far more frequently: how much more I should hardly like, definitely to estimate, though I may conjecture that its proportion in the malignant disease is at least thrice (and probably six to ten times) as great as in the ulcer.

This converse disproportion is obviously in great part due to the peculiarities of the destructive process which occurs in the course of gastric cancer. Growth and decay, deposit and ulceration, are generally going on

at one and the same time in different parts of the diseased mass. And thus, even at the very time that the sloughy or ulcerous surface by which the cancerous tumour abuts on the gastric cavity is hourly losing a certain proportion of its bulk, the opposite or peritoneal aspect of the tumour is rapidly throwing out a cell-growth that more or less replaces these ravages. Hence it is quite possible that, even after long ulceration, the thickness of cancerous deposit between the cavity of the stomach and that of the peritoneum may remain comparatively undiminished. No doubt this process may be regarded as to some extent paralleled by the deposit of lymph at the base and margin of a gastric ulcer; especially where (as is occasionally the case) the symptoms point to an uninterruptedly open state of the ulcer during a long period of time. But the analogy is a very remote one. For while it is chiefly the situation and amount of such lymph which determine the occurrence or non-occurrence of perforation in the gastric ulcer,—and such a quantity as is generally present in the ulcer of the posterior surface is (in the majority of cases) an efficient barrier to this incident during an almost indefinite period,—no quantity of cancerous deposit can have any such protective efficacy. The newly-interposed mass may indeed, for the time, intervene between the stomach and the abdominal cavity: but the protection temporarily afforded by its quantity is sure to be soon abolished by its quality. In other words, its cancerous nature shortly brings about an extension of the same softening or ulceration as that which already occupies the neighbouring mass, and the barrier gives way.

These circumstances are well illustrated by the fact that the situation of the cancerous mass exercises no influence on the accident of perforation at all comparable with that seen in ulcer of the stomach. Indeed, from the posterior and diaphragmatic aspect of the cancerous stomach being the earliest and most frequent seat of adhesion, it is precisely in this situation (the safest a gastric ulcer can occupy) that the cancerous perforation most frequently takes place.

In both cancer and ulcer we are bound to recollect that the occurrence of perforation, as a pathological event, is by no means synonymous with the characteristic and fatal group of symptoms we generally associate with this word. Just as in the latter disease the true perforation of the gastric coats is often accomplished months, or even years, before an extension or renewal of the ulcerative process penetrates the new tissue which has hitherto warded off the accident; so in the cancer, the portion of the stomach that corresponds to the diseased mass has often been destroyed, long before the destruction of the subsequent deposit brings about a communication between the gastric and abdominal cavities. But the degree in which any of the original structures of the part are left, it would often be impossible to define. The frequency of partial perforation—or rather of a leakage of the gastric contents through such a spongy mass—it is not easy to compare with that of the similar accident in ulcer. But its apparently greater frequency is readily explained by the above allusions. And lastly, in any strict comparison of the pathology of the two diseases with respect to this accident, the date and mode of death in cancer ought not to be overlooked. It is scarcely too much to conjecture that a much larger proportion of cancerous tumours would

end by perforation, were it not that the collateral circumstances of the disease often destroy life before the local mischief has reached this stage of development.*

Any satisfactory hypothesis for the relative frequency of communication between the cancerous stomach and the colon, it is not easy to offer. The selection of this part is of course explained chiefly by its situation. But while the above characters of the process of cancerous deposit no doubt constitute the main cause of this particular variety of perforation, as well as of the accident in general, the equal frequency of this one variety with all the others put together, suggests some peculiarity, favouring either the deposit or the removal of cancerous substance; and connected with the colon, rather than with the various other structures that adjoin the stomach. Perhaps, however, the mere thinness of the intestinal coats, as contrasted with these structures, will account for their being more rapidly and frequently penetrated when adhesion has once taken place. At any rate we are scarcely at present entitled to assume any specific liability of the colon (in virtue of its structure or function) to an accident of which the more immediate conditions seem so evidently local.

The *hemorrhage* which occurs in the course of gastric cancer affords in some of its varieties an equal contrast with that witnessed in gastric ulcer. As a rule, it only occurs after the access of ulceration; though prior to this event it may be produced by mere passive or active congestion,—a form of bleeding which, from obvious reasons, seems to be much more frequent in cancer than in ulcer. The exact frequency of moderate hemorrhage can scarcely be estimated in either malady. But those larger bleedings which occur as a result of the lesion of a considerable artery, seem to be much rarer in cancer than in ulcer. Out of 374 cases, only 4 exhibit such a hemorrhage: a proportion of barely more than 1 per cent., or one-fifth of that calculated for gastric ulcer. As might have been expected from the usual situation of the cancerous deposit, all of these appear to have been lesions of the superior pyloric artery (or *coronaria dextra ventriculi*).

As regards the *obsolescence* of the cancerous deposit in the stomach, as evidenced by the detection of cretaceous matter, the 214 cases I have collected only afford one instance of this kind,—a woman, aged thirty, affected with colloid cancer of the pylorus, the liver being also occupied by medullary deposit. A similar case described by Dittrich, suggests equal doubt how far this process really deserves the above name. While these cases may suffice to modify Rokitsansky's opinion respecting the exclusively hard and fibrous character of the cancers amenable to this process, their rarity reduces them to a very exceptional (and practically unimportant?) variety of the disease.

With just as cursory a notice I must dismiss the subject of the healing of cancer. In every instance which has hitherto come under my personal

* For example, if we may regard the establishment of an unnatural opening between the cancerous uterus and the bladder or rectum, as analogous to perforation of the peritoneal cavity by a cancerous stomach, it may be interesting to notice that there is good ground for estimating that the former accident is from two to four times as frequent as the latter, proportionally to the numbers of the two localizations of cancer.

notice, I have been able to assure myself that the cicatrices which suggested such an explanation were precisely similar to those of ordinary ulcers. Of course such a statement does not claim to invalidate the observation of others who have found scars covering a scanty scirrhus deposit. But is it not quite possible that some of these instances may have been deposits of scirrhus in the cicatrices of ordinary ulcers? Or, in the observations that assert such a healing process, have the fusiform cells and fibres of the dense fibrous tissue that forms such scars never been mistaken for those of scirrhus—from which it is hardly too much to say that they are sometimes scarcely distinguishable by the most sedulous examination? At any rate, are these cases authenticated (as they certainly ought to be in order to establish so striking a fact) by a careful comparison with the symptoms of the patient during life? Lastly, is it safe to accept statements which (like Lebert's) allude to the appearances in language so equivocal as the term “scars of cancerous ulcers” seems to be, when brought forward by a pathologist whose devoted industry in clinical research does not allow him to depict so common a disease as ulcer of the stomach from his own experience?*

The *etiology* of cancer of the stomach has so little direct connexion with the symptoms which attend the malady during life, that one may take this opportunity of summing up those pathological details which, from their prominence and constancy, seem most to suggest a causative relation. The most obvious (and at any rate the most convenient) hypothesis of the disease we have been considering, would refer it to a causation which is probably itself the co-efficient of at least two elements—the disease, and its site; the cancer, and the stomach it invades.

In respect to the former of these two elements of causation, there do not seem to be any facts which entitle us to suppose that the disease (whether exclusively humoral or not) presents any specific modifications in the stomach. At any rate, the larger features of age, sex, &c., so far as our information extends, afford little countenance to such a supposition.

Assuming so much of the ordinary theories respecting the cancerous diathesis, as to infer that the cancerous deposit expresses and measures its intensity with tolerably equal accuracy in all the organs it generally affects, it is chiefly as to the selection of the stomach by this deposit, that we may examine into the facts brought together in the preceding pages.

We have successively seen, that the disease selects the stomach in a large proportion of cases; that in this organ itself, it further chooses out the cardiac and pyloric orifices, and especially the pyloric. Its situation, in the earliest stages in which we detect it, conclusively shows that it cannot be attributed to any mechanical or chemical effects of the ingesta; that it is not due to any change in the secretory apparatus of the stomach, or even to a lesion of any part of the mucous membrane, or of the tissues immediately subjacent. In short, that, for all practical purposes, we may sum up the histological site of the deposit as the loose sub-mucous areolar tissue, at some little distance from the active cell-

* Loc. cit., p. 526.

growth of the gastric surface ; and generally, so much nearer (or more closely allied) to the similar connective tissue between the bundles of unstriated fibre, as to involve these long before reaching the mucous membrane.

The organ thus affected, is, with the exception of the rectum, the œsophagus, and the uterus, the thickest and strongest mass of unstriated muscle in the human body. Relatively to its function, indeed, it transcends the contractile structures of all three of these organs: because that function implies constant and protracted movement, instead of such an intermittent and brief contraction as that by which every one of them might readily be shown to impel their contents. How violent as well as protracted that movement is, may be easily conceived when we recollect that, for at least six of the twenty-four hours, the stomach is actively contracting upon (and propelling) its contents; by a movement which, during a great part of this period, almost obliterates the cavity of the pyloric half of the organ every two or three minutes.* Hence, quite apart from its mere bulk, we may fairly suppose that the muscular coat possesses an exalted nutrition—a rapidity of growth and decay—which proportionally exceeds that of either of the other masses of this tissue with which we have contrasted it.

Should future researches establish either the absolute commencement of the disease in the unstriated fibre-cells themselves, or (what seems more probable) an exactly analogous situation of its development in all four of these organs—stomach, uterus, œsophagus, and rectum—of course the above conjecture would acquire a somewhat firmer basis. In any case we have to recollect that the areolar tissue on and between a given mass of muscle, necessarily shares in (and often, from its very office, in a far higher degree) the mechanical displacement which that muscle executes: and therefore as necessarily becomes the seat of a nutrition exalted beyond that of the same tissue in less active parts.

It is therefore to the more energetic movement of the pyloric half of the stomach, and to the passive as well as active relations of the pyloric and cardiac valves at the extremities of the organ, that the frequent selection of these parts by the cancerous deposit may, probably be directly or indirectly ascribed. Whether the peculiar structure of the organic muscle, as a cell-growth, invites the access of a disease the morphology of which is closely akin to its own, is a question which there are no means of deciding, and which little concerns those gastric peculiarities to which we are limiting our attention.*

Such an hypothesis, however, as that we have advanced, ought never to be stated without an exposure of its chief deficiencies ; a knowledge of which restrains any conjecture to the useful office of grouping facts, and at the same time prepares for its confirmation or rejection. While it is not impossible (for instance) that the conditioning cause (*causa causativa*) of the preference of this or that particular organ by cancerous disease, may be a different (or even compound) one in each, it is difficult to fit into such an hypothesis as the above the frequency of uterine and mammary cancer. In the former organ, we may perhaps indistinctly shadow

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* Compare the author's Essay, "STOMACH," *Cyclop. Anat.—Supplement*, pp. 314, 315.

put something compatible in that remarkable activity of growth and decay which its muscular wall from time to time undergoes, connected as the disease is with a period of life when we might readily imagine a transference of nutritional activity from one part of the reproductive apparatus of the female to another. But in the latter, this vague formula of transferred activity is alone left us; and, if we except the doubtful influence of mechanical violence in producing cancer, it is difficult to trace any community of causation between the gastric and mammary lesion. The conjecture hazarded with respect to cancer of the stomach therefore remains but a doubtful one;—opposed though not absolutely contradicted, by some of the most valid evidence which can at present be adduced.

ART. III.

*The Relation of Cataract to Heart Disease.** By T. FURNEAUX JORDAN, Demonstrator of Anatomy at Queen's College, Birmingham, and Medical Tutor to the same College.

THE use of the stethoscope in modern medicine has revealed, in many diseases, abnormal thoracic conditions formerly unsuspected; which, in truth, constitute the gravest phase of the affections in which they occur. It is a matter of surprise that the stethoscope has not been more commonly used as a surgical instrument whereby might be deciphered the many anomalous phenomena whose appearance too often perplexes the surgical eye, and to whose treatment the surgical mind is so often inadequate.

Not unfrequently are the most brilliant operative proceedings attended with a signal and unexpected failure—a failure which might have been averted, and possibly life saved and credit preserved, by the prior application of an educated ear to the infra-clavicular or the præcorvical region. An inflexible routine treatment in any disease is ever indicative of the empiric. From such degradation, medicine has to an eminent degree emancipated itself. The same engine of delivery is available to the surgeon. To the most thorough collation of general symptoms—say in a strumous joint-affection—let the surgeon add the auscultative condition of the thorax, then will his treatment be based on a philosophic induction from all the ascertainable data, and not on a merely arbitrary categorical distinction. The surgeon would not care, on the one hand, to amputate at the thigh in a rapidly-extending tubercular deposit in the lung; or to allow his patient, on the other hand, to die for the want of an amputation, because night-sweats, diarrhoea, hectic, emaciation, and debility led him to fancy a condition of the chest which the stethoscope only could tell him did not exist. Nay, in practice, finer distinctions than these must direct the conscientious surgical treatment. An actively-increasing deposit of tubercle in the lung, a softening of a deposit already occurred, or a limited inactive deposit with no tendency to degenerative changes, will each modify remedial action.

* In making the investigations embodied in the following article, every facility was kindly afforded me by Messrs. Cheshire, Solomon, and Townsend, the able surgeons of the Birmingham and Midland Eye Infirmary.

To turn from the surgical value of a humid râle to the surgical value of a *bruit de soufflet*, I know no better illustration of the latter than may be drawn from a class of cases not yet described in medical literature, by no means frequent, yet sufficiently so to lead both learned physicians and learned surgeons into occasional completely erroneous diagnoses. A man is brought into a hospital with a total inability of motion, an excruciating pain in the joints—aggravated by the slightest movement, a furred tongue, hot skin, extreme thirst, an accelerated pulse, may, even a sour perspiration and a cardiac bruit; universally, the case is diagnosed as acute rheumatism; alkalis, colchicum, and opiates are given; the joints sweated; the diet lowered; and in a week we are called upon to open two or three large diffused abscesses from acute necrosis of the larger bones. Probably a closer examination would have told us that the bruit was aortic, and presumably of a functional or blood character; while, in acute rheumatism, the mitral valve rarely escapes some lesion—a point perhaps not sufficiently insisted upon by authors.

Another reason why it behoves the medical investigator to scrutinize carefully the condition of the thoracic organs, especially the heart, is, that recent research is gradually unfolding, to an unexpected extent, the principle that many diseases, more especially those of the inflammatory type, are merely partial expressions of some all-pervading constitutional state. On this ground it is common to call what seems an idiopathic inflammation of the pericardium or endocardium, rheumatic pericarditis or endocarditis, as the case may be. Other examples are found in the pseudo-inflammatory affections which occur in Bright's disease, fever, the exanthemata, &c. In these abnormal diathetic conditions, what more delicate index have we of the states of the fluids, or of the solids made out of the fluids, than the central engine of their propulsion?

That there should be an intimate connexion between cardiac and ophthalmic disease cannot, even *a priori*, be deemed improbable to any one prepared to admit the connexion between diseases of the heart and diseases of the brain—a connexion, the existence and importance of which are placed beyond doubt by the labours of Reid, Burrows, and Watson, whatever of contradiction may appear in their elaboration. Shall the central artery of the retina maintain its integrity amid the ravages of a disease which does not leave the divisions of the internal carotid itself competent to the performance of their duty? The purely mechanical protrusion of the eye attending a hypertrophic heart is a condition now commonly appreciated. But there are probably other and more delicate conditions of the visual organ, telling of cardiac states so palpably that they shall challenge the credence of the accomplished physician and the accomplished surgeon.

The foregoing remarks are intended to introduce the record of some cases illustrative of a hitherto unsuspected relation which exists between an important surgical affection of the eye—cataract—and disease of the heart; and this relation simply will occupy our attention at present. The operative department of cataract is extensive in remedial contrivance and rich in literature. But the causes, pathology, and morbid anatomy of cataract are yet wrapped in grave doubt. •

The object of the following cases is to support the proposition—that non-traumatic cataract is frequently associated with, and in many instances may fairly be regarded as a result of, cardiac impairment. The nature, extent, and locality of such cardiac lesion will be more fully referred to after a statement of the cases which have led to its inference has been placed before the reader. The cases are not selected, but are all that came before me from one certain date to another. It is presumed that they furnish data for all the conclusions which it is the object of this paper to set forth. They are about twenty in number, and constitute but a third of the cases of cataract in which I have most carefully ascertained the thoracic conditions; and in no one of the whole number of cases could a perfectly healthy condition of the heart be confidently affirmed to exist. The cases given are at some length, in order that the conclusions drawn might receive confirmatory evidence from the general symptoms, and the general and clinical history of each individual case.

CASE I.—*Cataract—Mitral Regurgitation—History of Acute Rheumatism—Limited. Tubercle.*—Emma S., aged forty-four. Married. Dark hair and irides. Slight venous hue of the lips. Has had five children, all of whom are living. Her father died apoplectic; the mother apparently from old age. She states herself to have had tolerably good health until her twentieth year, when an attack of acute rheumatism confined her to bed several months. From that time to the present has had eight or nine similar though less severe attacks. In one of them local treatment was directed to the heart. She has constantly been subject to pains in the left temple, and in the larger joints. About six years ago, the left eye began to grow dull from the formation of a cataract. Eight months ago, the right eye became affected in a similar manner. Has suffered from occasional palpitation of the heart and dyspnoea. The impulse of the heart is against the sixth rib. Præcordial dulness extends upwards to the upper border of the fourth rib, outwards to a vertical line half an inch external to the nipple, inwards, to the centre of the sternum. A loud, blowing, slightly roughened systolic murmur is heard under the nipple, having its maximum intensity over the apex of the heart; while at the base of the same organ, and along the course of the aorta, it is inaudible. The pulse is small and irregular. The external jugular veins are more than usually distended. Thoracic expansion is slightly impaired under the right clavicle. Vocal fremitus is alike on both sides. Over the right infra-clavicular region there is a shade of comparative dulness, with, on applying the ear, increased vocal resonance, and one or two moist clicks at the end of the inspiratory act. Similar phenomena are audible in the supra-spinal fossa of the same side. Under the left clavicle, inspiration is rough and loud. Flesh has been gradually lost for two years, and for double that period slight cough has been present in the morning. Has never had hæmoptysis, diarrhoea, or night sweats. The appetite is good. The bowels are regular. The catamenial periods are prolonged. The urine natural.

CASE II. Cataract—Aortic Obstruction—Fat, flabby, pale subject.—Mary D., aged forty-six, a widow, flabby and pale, lips exsanguine. Her mother died dropsical at sixty-two. Does not remember the cause of her father's death. She married at twenty, and has had six children. Since her marriage she has suffered from debility, "bilious" attacks, and hæmorrhoids. Two years ago the left eye grew dim from the formation of cataract. In a few months subsequently the right eye followed a similar course. The patient's manner is singularly reserved. The special senses, with the exception alluded to, are unimpaired. The impulse of the heart is slightly increased, its site being behind the sixth rib. Cardiac dulness extends upwards to the lower border of the third rib, three inches beyond the nipple externally, to the centre of the sternum internally. A loud systolic bruit is heard at a point midway between the chondro-sternal articulations of the third and fourth ribs, being distinctly audible up the aorta, very much less so towards the apex. The pulse is slightly diminished in calibre. The respiratory phenomena are those of health. The catamenia ceased ten years ago; pain and flatus are complained of after food. The bowels are open. The urine natural.

CASE III. Cataract—Mitral Regurgitation—History of Acute Rheumatism—Limited Tubercle.—Samuel G., aged forty-five, a farm labourer, rather under ordinary stature, brown hair, grey irides. Father and mother living. He enjoyed good health until his twentieth year, when he was laid up sixteen weeks with acute rheumatism. Local treatment was directed to the præcordia. Two or three years subsequently he was said to have brain fever, immediately after which both eyes began to grow dim from the formation of cataract. For the last two years he has been subject to occasional pain in the infra-lateral region of the left side, accompanied with some dyspnoea and cough. The intelligence is average. With the exception of vision, the special senses are unimpaired. The heart's impulse is natural, and cardiac dulness is of normal extent. A well-marked systolic prolongation is heard below the nipple, which is inaudible up the aorta. The pulse is small and unequal. The chest is of normal conformation. Expansion is impaired under the left clavicle, where there is slight increase of vocal fremitus, and, on percussion, a slight degree of comparative dulness. In the same spot the inspiratory murmur is rough, and the expiratory is distinctly audible. Occasional friction-sound of the left infra-lateral region is heard. There is some perspiration at night, and flesh has been gradually lost during the last two years. The bowels are usually constipated, with occasional attacks of diarrhoea. The appetite is good, the urine natural.

CASE IV. Cataract—Mitral Regurgitation—Fat, flabby subject—Inactive Tubercle.—Elizabeth B., aged sixty-four, married, had one child. Her father died at eighty, apparently from old age. Her mother at sixty, from cancer of the breast. Has lost two sisters from phthisis. Has always enjoyed tolerably good health. The catamenia ceased in her fifty-second year. Six years ago the right eye began to

grow dim, and very shortly afterwards the left also, from the development of cataract. The mammæ are so large that the precise limits of præcordial dulness are not ascertainable—it is certainly increased. A prolonged systole may be heard at the apex only. The chest is of average conformation. Thoracic expansion is not impaired on either side. Vocal fremitus is increased under the right clavicle, where percussion evolves an inconsiderable degree of comparative dulness. In the same spot the expiratory murmur is distinctly audible, as well as the inspiratory. The appetite is moderate; the bowels regular; the urine natural.

CASE V. Cataract—Mitral Regurgitation—Rheumatism—Inactive Tubercle.—Mary S., aged forty-six, appears fifty-six; married; emaciated. Her father died in his seventieth year from apoplexy. The mother died in middle-age from cancer of the breast. When seventeen she suffered severely, and for a long period, from "green sickness." At twenty-three she married. Has had eight children. Five years ago, during her last pregnancy, she was seized with rheumatic fever. The child was born dead at the seventh month. Three years ago the right eye began to grow dim from the formation of cataract. Twelve months ago the left eye became affected in a similar manner. Intelligence and the special senses, except vision, are unimpaired. The impulse of the heart is slightly increased. Præcordial dulness is of normal extent. A loud systolic bruit is heard at the heart's apex, inaudible under the sternum. The pulse is small and irregular. No palpitation is complained of. There is an occasional sense of constriction across the lower part of the chest on a level with the ensiform cartilage. Thoracic expansion is impaired on both sides. Vocal fremitus is increased under the right clavicle, where there is a slight degree of comparative dulness. In the same region vocal resonance is augmented, and the inspiratory murmur is blowing and wavy. In the supra-spinal fossa of the same side no sound whatever can be heard. Under the left clavicle inspiration is slightly puerile. She never had hæmoptysis. There are no night sweats or cough. The bowels are alternately constipated and relaxed. The appetite is not good. The tongue is small and pale. The urine is natural; the catamenia regular.

CASE VI. Cataract—Prolonged Systole at Apex—Fat, flabby subject.—Elizabeth H., aged forty-nine, married; had six children and two miscarriages; is fat and flabby, but states herself not to be so stout as formerly. Her father died, seemingly, from old age; the mother died at forty-nine, probably from cancer. The patient has enjoyed only indifferent health. Seven years ago the left eye lost its visual power from cataractous opacity. The right eye soon followed a similar course. During the development of the cataract she was subject to frequent attacks of vertigo, dyspnoea, weight in the epigastrium, and sense of faintness. In these attacks she took stimulants with relief. Five years ago the catamenia ceased, after having always been scanty. Intelligence is weak, with great loquacity. From the fat and flabby

condition of the mammæ, it is difficult to ascertain the precise limits of præcordial dulness; it is undoubtedly increased. A slight prolongation of the systole is heard under the nipple, but which is inaudible up the aorta. The sounds of the heart are feeble, and limited to the cardiac region. Thoracic expansion is slightly impaired on both sides. There is a slight shade of dulness under the right clavicle, where also vocal fremitus and bronchial voice are more clearly pronounced than on the other side. The inspiratory murmur also is feeble, while under the left clavicle it is obviously exaggerated. At present there is no cough; two months ago, however, she spat up a little blood. The appetite is good; the bowels regular; and the urine natural.

CASE VII. *Cataract—Mitral Regurgitation—Slight Aortic Incompetency—History of Acute Rheumatism.*—Elizabeth H., aged seventy; single; emaciated. Mother died at forty-two, dropsical; the father and two of her sisters also died dropsical. At ten she had "spotted fever;" and at thirty she had what was called "typhus" fever. At fifty she was laid up seventeen weeks with rheumatic fever. Since then she has suffered slightly from some dyspeptic symptoms—nausea and pyrosis. She never had palpitation, dyspnoea, or cough. Three years ago she spat up on one or two occasions a small quantity of blood. At thirty, the catamenia were absent for fourteen months; at forty-four they ceased. Four years ago the right eye grew opaque, as, twelve months subsequently, did the left. Præcordial dulness extends upwards to the upper border of the fourth rib, inwards to the centre of the sternum, outwards an inch beyond the nipple. A marked systolic prolongation is heard, having its maximum loudness two inches below and a little to the inner side of the nipple. It is not heard up the aorta, but in the latter region the second sound is dull and slightly prolonged. The heart intermits every fifth or sixth beat. The pulse is small, but at the same time rather jerking. The respiratory phenomena are normal. The appetite is good. The bowels are confined.

CASE VIII. *Cataract—Aortic Constriction and Patency—Hypertrophy of the Left Ventricle.*—Elizabeth K., aged sixty-four, married. Had ten children. Slightly emaciated. Her father died at fifty, consumptive. The mother, dropsical, at seventy-two. States that she was married at twenty-one, and enjoyed tolerable health until the birth of her youngest child, twenty-one years ago, since which time she has been subject to attacks of vomiting, with great pain in the left scapular region, and beneath the left nipple. Eight years ago the left, and three years ago the right, eye gradually became opaque. A slight degree of *frémissement cataire* is appreciable over the præcordia; percussive dulness extends upwards to a level with the nipple. At the upper margin of the dulness the thrill is best marked. A prolonged systole is heard over the aortic valves, where the diastole also is muffled and slightly prolonged. The heart's action is irregular, and occasionally intermittent. Was formerly, she states, subject to vertigo

has now occasional dyspnoea. The respiratory phenomena are normal. No cough, diarrhoea, or night sweats. The appetite is bad; the bowels are usually constipated. The catamenia ceased on the fiftieth year. The urine is natural.

CASE IX. Cataract—Mitral and Aortic Regurgitation—Rheumatism.—Richard R., aged seventy-five, farm-labourer; married; tall, fat, and flabby. His mother died in childbed; the father reached old age. Has lived regularly and enjoyed good health until twenty years ago, when he began to be troubled with the subacute form of rheumatism, the head, feet, hands, and fingers being affected. Nine years ago, it would appear he had oedematous extremities for seven months. It was about that time that cataract began to develop itself in the left, and two years subsequently in the right, eye. Formerly he was much subject to cough and palpitation of the heart. The impulse of the heart is not markedly increased; præcordial dulness reaches the upper margin of the fourth rib, and is increased laterally to a corresponding degree. Two inches below, and a little behind the nipple, a loud systolic bruit is heard, which masks both sounds of the heart. This bruit is inaudible up the aorta, but in the latter region a harsh diastolic one may be heard. The heart's action is unequal, irregular, and intermittent. The inequality of the pulse is exceedingly marked—two or three feeble beats being followed by a large one. The respiratory phenomena are not unhealthy. The appetite is moderate; the bowels regular; the urine clear on the application of heat and nitric acid. Never had nocturnal micturition.

CASE X. Cataract—Mitral Regurgitation—Aortic Constriction—History of Acute Rheumatism.—Charles B., aged sixty-one, a widower; a boat-loader; above the average height; rather stout; grey irides. Both parents are dead, but does not know from what cause. He enjoyed tolerably good health until twenty years of age, when he was laid up fifteen weeks with acute rheumatism. From that period to his fortieth year, he had occasional smart attacks of a rheumatic character; since the latter period they have given him no trouble, but he has had occasional attacks of dyspnoea and palpitation of the heart. Eight years ago, a cataract began to form in the left eye; and twelve months subsequently, the right eye became affected in a similar manner. Cardiac dulness reaches upwards and outwards to the nipple, and inwards to the centre of the sternum. A systolic prolongation is heard most loudly at the apex; less so up the aorta. The pulse is small, irregular, and intermittent. The respiratory phenomena are healthy, save that under the left clavicle the vesicular murmur is partially augmented. Has slight cough; never had hæmoptysis. No nocturnal perspirations. Has not lost flesh. The appetite is moderate; the bowels regular; the urine natural.

CASE XI. Cataract—Mitral Constriction—Aortic Dilatation—Rheumatism.—Samuel L., aged seventy, a forgerman, married. His father

died "asthmatic" at sixty-seven; the mother in her seventieth year, from cancer. Is of average height, very fat, and flabby. Has always enjoyed good health, with the exception of rheumatic pains. In his fiftieth year, he was confined ten weeks with a severe sciatica. Two years ago the right eye began to grow dim, and soon afterwards the left, from the formation of cataract. Cardiac dulness extends upwards two inches above the nipple, outwards one inch beyond the same point, and inwards to the centre of the sternum. The heart-sounds seem reversed, the diastolic being the longer, especially at the apex; less vividly so up the aorta. The pulse is small, rather sharp, and occasionally intermittent. The respiratory, digestive, and urinary phenomena are normal.

CASE XII. *Cataract—Mitral Regurgitation—Rheumatism—Tubercle—Lead Poisoning.*—John M., aged forty-four, a japanner; married; dark hair and irides; slightly emaciated. Father living. The mother died in her sixty-fourth year, passing gall-stones. He states that his habits have been regular. In his twenty-first year he had an affection of the heart, accompanied with great pain. Local treatment was directed to the præcordia. Since that time he has been subject to occasional pains of the heart, attended with more or less palpitation and dyspnoea. Nine years ago the right eye grew dim from cataractous opacity. During the last twelve months the left eye has followed in a similar path. The cardiac region is distinctly prominent over the cartilages of the fourth, fifth, and sixth ribs. Cardiac dulness extends upwards and outwards to the nipple. Over the apex, which is two inches below, and a little external to, the nipple, a systolic bruit is audible, which cannot be heard up the aorta. Thoracic expansion is slightly impaired under the right clavicle. In the same spot, there is a shade of comparative dulness, with augmented vocal fremitus; while the stethoscope reveals in the same region increased vocal resonance, and a semi-tubular inspiratory murmur. The respiratory phenomena are normal, save some exaggeration under the left clavicle. There is occasional pain between the shoulders. Never had hæmoptysis; no nocturnal perspiration; no diarrhoea. Has lost flesh during the last six months. The appetite is moderate. There is slight blue line on the gums. Lead is used in his occupation. There is no colic. The bowels are not constipated.

CASE XIII. *Cataract—Mitral Regurgitation—History of Acute Rheumatism—Limited Tubercles.*—Henry F., aged sixty-nine, a widower; works in iron; fat and flabby. Does not remember his mother's death. His father died apparently from old age. Has lost three brothers and five sisters from chest affections. States that he had good health until seventeen years ago, when he had rheumatic fever; since then he has suffered from occasional attacks of dyspnoea and palpitation of the heart. Two years ago the left, and six months ago the right eye, began to grow dim from the formation of cataract. The heart's impulse is not markedly increased. Cardiac

dulness extends one inch and a half above the nipple. A marked systolic bruit is heard over the apex, which is inaudible at the base of the heart. The pulse is very small, and occasionally intermittent. Thoracic expansion is diminished under the right clavicle, where vocal fremitus is increased, and where percussion gives a shade of comparative dulness. The stethoscope reveals in the same region increased vocal resonance, and a semi-tubular, occasionally wavy, respiratory murmur. The respiratory phenomena of the left lung are healthy; the appetite good; the bowels are occasionally relaxed; the tongue is pale; the urine natural.

CASE XIV. *Cataract—Aortic Constriction and Patency—Limited Tubercle—Rheumatism.*—Jonathan K., aged sixty; married; a farm-labourer; average height; stout; lips exsanguine. His father died in his sixtieth year, probably from psoas abscess; the mother died at seventy, apparently from old age. In his seventeenth year he had the ague. Fourteen months ago he had severe pain in the frontal region, apparently of a rheumatic character. Twelve months ago the right, and subsequently the left eye, became dim from the formation of cataract. Præcordial dulness reaches upwards and outwards to the nipple, and inwards to the centre of the sternum. The heart's impulse is slightly increased. Over the aortic valves, and up the aorta, a prolongation of both sounds is heard, which cannot be heard at the apex. Thoracic expansion is diminished under the right clavicle; in the same spot vocal fremitus is augmented, while percussion yields a comparative degree of dulness. The inspiratory murmur is exceedingly feeble, and expiration is attended with a short blowing sound. The respiratory phenomena are exaggerated on the left side. Never had hæmoptysis; no night sweats or diarrhœa. The appetite is good; the bowels regular; the urine natural.

CASE XV. *Cataract—Mitral Regurgitation—History of Heart Disease.*—George T., aged forty-four; married; a plasterer; very stout; arcus senilis present. The left eye was lost twenty years ago from injury. Both parents died from old age, the father being seventy-five, the mother eighty. Was very intemperate in his youth. In his twenty-fourth year was under medical care for some cardiac affection, for which the præcordia were leeches and blistered. Has constantly been subject to attacks of vertigo, tinnitus aurium, and dyspnœa; otherwise has had tolerable health. Has no cough. Never had hæmoptysis. Cardiac impulse is diffused. Dulness extends one inch and a half above the nipple, to the nipple externally, and to the middle of the sternum internally. At the apex, a prolongation of the systole is heard, which is inaudible up the aorta. The respiratory, digestive, and urinary phenomena are healthy.

CASE XVI. *Cataract—Mitral Regurgitation—Hypertrophy of Left Ventricle.*—Henry B., aged fourteen; a smith; tall and stout; dark hair and irides. Father and mother living. Has always had good

health, save that eighteen months ago he had some affection of the left eye, which in a month lost all useful sight. Never had any injury to the eye. The cataract is of a bluish-white appearance. The iris acts well. The lower half of the sternum is much depressed, while the præcordia is unusually prominent over the cartilages of the fourth, fifth, and sixth ribs. The impulse of the heart is stronger than usual. At the apex of the heart there is a prolongation of the systole, not heard up the aorta. Cardiac dulness extends upwards and outwards to the nipple, and inwards to the centre of the sternum. The respiratory, digestive, and urinary phenomena present no marked deviation from health.

CASE XVII. *Cataract—Mitral Regurgitation.*—George S., aged nine; a pale, thin lad; light hair; blue irides. Four years ago, the lens of the left eye gradually became opaque, without any obvious cause. Cardiac dulness is slightly more extensive than usual. A roughened prolongation of the systole is audible over the apex of the heart, inaudible at the base. Never had rheumatism. Is said to have had several attacks of inflammation of the brain. The cerebro-spinal functions are unimpaired. The respiratory, digestive, and urinary phenomena are those of health.

CASE XVIII. *Cataract—Mitral Regurgitation—Hypertrophy of the Left Ventricle.*—John G., aged seventy, furnace-worker; married; neither stout nor emaciated. His father died at eighty-three, seemingly from old age; mother at sixty-three, from apoplexy. A sister also died from an apoplectic seizure. Three or four years ago, had a severe attack of rheumatism, of a doubtful acute character, which invalidated him between two and three months. With the exception alluded to, his health has always been tolerably good. Two years ago, the left eye gradually lost the power of vision; as subsequently did the right, from the development of cataract. The intellect is not of average power. The cardiac impulse is slightly increased; its situation is two inches below, and a little internal to the nipple. Percussive dulness reaches upwards to a level with the nipple, and outwards to a line vertical from that point. The stethoscope reveals a distinct systolic bruit at the apex. Along the aorta, both sounds are natural. The pulse is small. The respiratory phenomena are healthy.

CASE XIX. *Cataract—Mitral Regurgitation—Aortic Constriction—Chest Injury.*—William A., aged seventy-one; a labourer; married. Father died at seventy-three, "worn out;" mother suddenly at sixty-five. In his twentieth year, a fall of rubbish so injured his chest, that his life was despaired of. Treatment was directed to the heart. The impulse of that organ is slightly more marked than natural. Cardiac dulness is of normal extent. A loud systolic bruit is heard at the apex; it is also heard, though less distinctly, at the base of the heart, and up the aorta. Three years ago, the left eye began to grow dim, from the formation of cataract. The right visual organ quickly fol-

lowed in the same path. The respiratory phenomena are healthy. The appetite is good; the bowels are regular; the urine natural.

After a fair consideration of the above cases, there can be no impropriety in making the affirmation with which they were introduced—that heart disease is in numerous instances found in conjunction with non-traumatic cataract, and that consideration of the history of the cases where it is found warrants us to look at it in the light of a cause. It cannot be presumed that the heart disease is a product of the same cause which induced the cataract, because then some other and prior cause of both would need to be eliminated. Such cause it would be difficult to demonstrate. No cause of cataract is known, unless heart disease be admitted to act as such. That admission being made, the causes of heart disease are numerous and undoubted.

The questions which now most naturally arise are these:—What extent of heart disease shall favour the development of a cataractous opacity? Is there any particular lesion of the heart which, more than another, predisposes to the affection in question? The cardiac disease exists only in a slight degree—a degree, however, unmistakably appreciable, whether we consider general symptoms or physical signs. The cardiac impairment is indeed so limited, that 'old age in cataractous patients is a familiar phenomenon to the ophthalmic surgeon. Nor does the true explanation of this circumstance rest on the inference that old age is itself a cause of cataract. A large number of cataractous patients are not old. In one-third of the above cases, the age is between forty and fifty, while two of the cases are under twenty years.

It being presumed that cataract is a gradual degenerative change in the crystalline lens from a partially impaired heart, it is natural to infer that the causes of so limited lesions would accumulate in old people—in other words, that younger people would be cut off by more extensive lesions, either of the heart or other organs.

Sudden death is not unknown in cataract—occasionally as the mortifying result of an operation; but so exceptional is it, that where so extensively a diseased heart is found as to render either death probable or life uncomfortable, cataract is one of the results least to be expected. Hence one common cause of cardiac mischief—Bright's disease—is unknown in cataractous cases, clearly because Bright's disease leads to other and graver results. Rheumatism, which may leave only slight impairment of the central organ of circulation, we have already seen to be a frequent incident in the history of cataractous cases—possibly in the same category with rheumatism, future research may include influenza, scarlatina, small-pox, and the various fevers.

In reply to the second question—"Whether any particular lesion of the heart more than another predisposes to the affection under consideration?" a negative would seem the more correct reply. Cataract obeys the general law which regulates for the most part all the secondary results of heart disease—namely, that the result is determined

rather by the amount than by the precise locality or nature of the abnormal condition. Of course the infinite rarity of disease of the right side of the heart is understood. In the above cases, slight mitral regurgitation is the cardiac infirmity found in the greater number of cases. In some of the cases, the mitral and aortic orifices were both partially implicated; in one or two, the aortic only. In several of the cases, a fatty condition of the heart might be reasonably predicated. It will be seen that an extended præcordial dullness without a proportionate increase of the heart's impulse, was a not unfrequent phenomenon. Hereditary heart disease was found in more than half the cases where the hereditary tendency could be discovered. In case No. 19, there had been a chest injury, evidently implicating the heart.

It is an undoubted disadvantage that the foregoing conclusions have not, from entire absence of opportunity, received the confirmation of post-mortem dissection. But such additional proof, while desirable, is not absolutely essential. A morbid sound is assuredly an appreciable phenomenon, and cannot exist without a cause.

Let us turn now for a moment to the collateral evidence confirmatory of the inferences above drawn. It has already been stated that the results of considerable cardiac lesion are not present, and cannot be expected to be present, in cataractous cases. The less grave symptoms, however, are frequently obvious, as vertigo, tendency to faintness, dyspnoea, palpitation. Those, too, who have mixed much with cataractous patients, must have observed frequently the peculiarity of their mental states—states not rarely found associated with heart disease. Extreme loquacity on the one hand, and obstinate taciturnity on the other, are psychological indices by no means rare. Nor are these results mere accidental sequences of blindness—they are not found in the blindness occasioned by injuries.

Probably much light may yet be thrown on the pathology of cataract by future microscopic examination of the opaque lens. In one opportunity I have had of examining a non-traumatic cataractous lens, the microscope revealed fat globules in the nuclei of the delicate cells covering the surface of the crystalline lens, and here and there a few delicate plates of cholesterine might be detected. May not cataract be the result of a process identical with or analogous to that of fatty degeneration? That fatty degeneration of a portion of the lens may exist, is proved by the researches of Drs. von Ammon and Schön, as quoted by Dr. Mackenzie. The former found, in cases of *arcus senilis*, a fatty arcus on the corresponding margin of the lens. Dr. Schön has found both the lens and posterior capsule affected with fatty degeneration.

Authors, when speaking of the causes of cataract, have been universally cautious. One only that they have advanced needs any consideration, which is, the influence of occupation in those who are exposed to the glare and heat of furnaces. A sufficient refutation of this opinion is found in the statements of the most reputed authors themselves. Mr. Middlemore, whose extensive ophthalmic practice

lies in Birmingham—the very hotbed of furnaces—says, speaking of such occupations, “They are much more likely to produce glaucoma or amaurosis, a varicose enlargement of the vessels of the eye generally, or some form of chronic inflammation of the deep-seated textures.” Dr. Mackenzie, too, throws equal doubt on the same class of causes. If, indeed, cataract could be demonstrated to be more frequent in those whose occupations are in the vicinity of furnaces, would not the rational explanation of so increased frequency be, that the arduous occupation, the lifting heavy weights, and the extreme heat, would affect the circulation and its central organ, rather than the well-protected crystalline lens?

PART FOURTH.

Chronicle of Medical Science.

HALF-YEARLY REPORT ON FORENSIC MEDICINE,
TOXICOLOGY, AND HYGIENE.

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I. TOXICOLOGY.

Poisoning by Stramonium.—At one time stramonium had a great reputation in medicine as an anodyne, and the fumes arising from it when burning are in country districts commonly inhaled by persons suffering from asthma. We have now to record a case in which the extreme effects of the stramonium seeds, when taken by the stomach, were exhibited. Dr. G. T. Elliot, physician to the Bellevue Hospital, and to the Nursery, New York, was called, on October 11th, 1856, to the Nursery, to see a robust little boy, between four and five years old, who, about an hour and a half before, had eaten some stramonium seeds, with the plant of which he had been playing. The matron had first observed the effects; she saw that his face was very flushed, and on noticing that there was no perspiration, she watched him, and soon found him staggering and behaving as though intoxicated. Just before the arrival of Dr. Elliot, he had thrown up some undigested food and about thirty seeds; his skin was very red, very hot, and moist; expression of countenance wild and staring; pupil nearly fully dilated, and utterly insensible to light; a lighted candle could be so held as almost to singe the lids, without inducing contraction of the iris, and without attracting the patient's notice; the child was so wild and restless as to be controlled with difficulty, and in raging delirium, biting with fury at those who restrained him. He was unable to stand, and yet plunged in a restless manner in whatsoever position he could be placed, all the movements being ill co-ordinated, and resembling those of chorea. The pulse was too rapid to count. The respiration greatly hurried, and at times gasping and choky. He was constantly talking, and yet was unable to articulate a syllable; while, from the expression of his face and movements, he seemed at times to be chasing or fleeing from imaginary objects. A teaspoonful of mustard was ordered, dissolved in water; it caused him to gasp in a somewhat alarming way, but was promptly ejected together with more seeds. In a short time a half teaspoonful of alum dissolved in warm water was administered, and after that had operated, warm water was freely given. He vomited three times, a few seeds appearing in the two first, and none in the third vomit. After an hour the patient could slightly articulate, and called the matron a "nasty thing" distinctly. He then slept two hours, with much jactitation and restlessness, and had one large movement of the bowels unconsciously; when he awoke his skin was cool, and the pulse 150; pupil the same; no apparent thirst; restlessness, intolerance of control, and chorea-like movements; an hour later had two more evacuations from the bowels, one quite copious, a few

seeds in the second. Two hours later he had improved, pupil answered slightly to the light, and he was conscious of the proximity of the light; has had two more passages, with a few seeds; can articulate pretty distinctly; can stand, and has taken three steps; chorea-like movements continue, and patient, when not roused, lies in a state of "mild delirium;" sings, talks, and fancies there are dogs in the room, which he describes and attempts to chase, springing suddenly to his feet, and as suddenly toppling over; sometimes talks of events of the day as though they were now taking place. An hour later is better, bowels have acted twice, once freely, with passage of more seeds; is thirsty, movements co-ordinate, but continued restlessness. From this time, three A.M., the patient slept until five, with about the same amount of jactitation, and on awakening had a passage, containing about twenty seeds; at eight another, containing more seeds, and then a quiet sleep. Is now perfectly conscious, voice and articulation natural, face still markedly red, pupil still slightly dilated, pulse 120. The pupil did not resume its natural state until the 14th, but recovery was perfect.

Dr. Elliot thinks that poisoning from stramonium cannot but be more frequent than is generally supposed.—*New York Journal of Medicine*, Nov., 1856.

[This case is unique in forensic readings. The symptoms, markedly different from those of opium, indicate that the treatment in another case of a similar kind should be emetics and a brisk purge.]

Transformation of Amygdaline into Hydrocyanic Acid within the Body.—Professor Kölliker, and Dr. Müller of Würzburg, have arrived at the following results from a series of experiments:—1. Amygdaline and emulsine introduced separately into the circulatory system by different channels, form prussic acid in the blood. 2. When the quantity of these substances is sufficiently large, death soon occurs; it takes place more slowly with weaker doses. When amygdaline is first injected into the blood, and emulsine an hour afterwards, death speedily occurs. 3. When emulsine is first injected, and amygdaline forty-five minutes afterwards death is retarded. Is the emulsine changed in the blood, or rapidly excreted? 4. Poisoning is not produced by injecting amygdaline into the blood, and emulsine into the alimentary canal. The emulsine, therefore, does not pass from the blood into the digestive canal, at least not without some change; on the other hand, it is not found in the intestines on post-mortem examination. 5. When emulsine is injected into the blood, and amygdaline into the intestines, poisoning occurs, though slowly. Death has been produced by introducing amygdaline into the digestive canal of rabbits, without any emulsine. The intestines of these animals contain a ferment, capable of converting amygdaline into prussic acid. 6. Amygdaline injected into the veins, or into the intestines, passes off in large quantities, sometimes rapidly by the urine; some experimenters, as Wohler and Frerichs, have not found amygdaline with certainty in this excretion; others, as Ranke, suppose it to be converted into formic acid.—*Allgem. Medicin. Central. Zeitung*, 1856, p. 72.

Poisoning by Cyanide of Potassium.—At a meeting of the Boston Society for Medical Improvement, on September 22nd, 1856, Dr. C. E. Ware related the following case.

A woman, who at the time was under medical treatment, took by mistake a teaspoonful of a solution of cyanide of potassium, this quantity containing about seven grains of the salt. Immediately after taking it she complained of severe burning in the stomach, and a feeling as if the bowels were about to act. She went to the water-closet, and almost immediately began to sink. She was removed to bed, and very speedily became unconscious. It was impossible to introduce anything into the stomach. She died in less than an hour. There was no convulsion before death, but a sudden convulsive action

of the body took place about ten minutes after the heart ceased to beat. There was no post-mortem. The colour of the body was so natural, even on the day following death, that Dr. Ware was sent for, the friends surmising that there might still be life.—*Boston Medical and Surgical Journal*, Dec. 11, 1856.

Poisoning by Cider containing Salts of Lead.—On February 2nd of the present year, a boy, named Violet, was admitted into the Children's Hospital in Paris. The patient, who was of a strong constitution, had been ill during a fortnight, but had undergone no medical treatment. His symptoms commenced with loss of appetite, a disagreeable taste in the mouth, constipation, and violent pain in the epigastric region. For two days the pains had continued over the whole abdomen, and had become very intense. At the time of visit the patient was in a state of extreme agitation; he had not had an evacuation for a week, but the abdomen was much retracted. There was a yellowish coating at the roots of the teeth, and a slate-coloured border round several. There was complete loss of appetite. The patient had been unable to sleep for the previous two nights, on account of the pain. There was no vomiting, no pain in the joints, no paralysis. The symptoms of lead poisoning being apparent, and the occupation of the boy—a carpenter's apprentice—giving no clue to their origin, M. Bouills, who reports the case, visited the boy's family, and learned that the father had a distinct attack of lead colic; and that the mother, who was six months advanced in pregnancy, was in the same state. She had the characteristic border on the gums, with constipation and colic, sufficiently intense to cause fear of abortion. Of five children, one was the patient at the hospital; the eldest daughter, aged fourteen and a half years, had had several attacks of colic and constipation. A boy, aged four years, was beginning to complain of the same symptoms. Two girls, aged two and nine years respectively, presented no symptoms. On inquiry, it was found that in making cider, of which all of the family who suffered drank (the two girls who escaped partook of water only), they had been accustomed to pass the fluid through a leaden filter. Salts of lead, probably acetates and malates, were formed and dissolved in the cider. On analysis, the presence of lead in the cider was distinctly shown. The proportion was calculated to be one part in four thousand. The urine of the boy in the hospital was found to contain lead. After treatment by castor-oil and sulphur baths, the patient recovered in a week.—*L'Union Médicale*, Feb. 17, 1857.

Poisoning by Wine of Colchicum.—Dr. Rennard, of New York, relates the following case:—Mary Mullan, an Irishwoman, aged fifty-six, came under his care at the Alms' House, on September 23rd, 1856, suffering from chronic rheumatism. An ounce of the wine of colchicum seeds was ordered, with directions to take twenty drops three times daily. Twenty-four hours afterwards, Dr. Rennard was called to see her, and found her in a state of extreme prostration, suffering from excessive nausea and vomiting, with slight purging, heat and burning in the fauces, inordinate thirst, cold, clammy skin, feeble pulse, violent supra-orbital pain, and distressing gastralgia, with a very anxious countenance. On inquiry, he found that she had taken an ounce of the wine of colchicum, in twelve hours, and shortly afterwards had been seized with violent and profuse vomiting, which had gone on increasing. A large sinapium was applied over the epigastrium, and a subitrate of bismuth was given with opium until the vomiting ceased; mucilaginous drinks were then ordered, and a cataplasm was applied over the region of the stomach.

On September the 25th, the patient had slept but little during the night; she had been vomiting at intervals, and seemed in a hopeless condition from gastritis. The bismuth with opium was repeated, and after many attempts, the vomiting was checked, and sleep was procured.

On September the 26th, the patient seemed much easier, but was still

troubled with retchings and vomiting occasionally, as well as with constant thirst, slight cough, and pain in the stomach. The same treatment was continued; and on September 29th she was discharged well.—*American Journal of the Medical Sciences*, January, 1857.

[For the particulars of five other cases of poisoning by colchicum, see Forensic Report, British and Foreign Medico-Chirurgical Review, October, 1855, p. 504.]

Poisoning by Ammonia.—At the beginning of August, 1854, Dr. Pellérin was sent for at Fontainebleau, to see a young lady who had attempted suicide. On his arrival in twenty-five minutes, he found the patient, Madame H., suffering from an intolerable sense of suffocation, and very restless. She had come to pass some months with her husband in Fontainebleau. In the evening, after some trifling disagreement with her husband, she retired to her room with the intention of committing suicide; she soon returned, with her face pale, her eyes haggard, and her hair disordered. The patient by signs informed Dr. Pellérin that she had taken from her table a phial containing solution of ammonia, that she had poured upwards of ten drachms into a glass, and swallowed off the whole at a draught. As soon as she had done this, she threw the glass from her, and rushed into the adjoining room in a state of extreme anxiety. Dr. Pellérin found her supported with difficulty in the sitting position, having on her knees a basin containing a large quantity of stringy salivary fluid with a few streaks of blood. The face was pale, the eyes were haggard and injected, the lips presented much swelling, and also redness, which extended to the mouth and fauces. There was complete aphonia. There was pain in the pharynx and epigastrium. Pulse was slow, limbs cold. Some spoonfuls of vinegar were given, but were swallowed with difficulty, from the pain produced in the pharynx. The pain in the epigastrium was very severe, and was increased on pressure. Twenty-four leeches were applied to this region, followed by a poultice. The neck was rubbed with oil and opium, and was wrapped in a warm linsed-meal poultice. Dr. Pellérin gave a draught of cold milk which happened to be at hand, and which gave relief. The impediment of breathing indicated leeches, as Dr. Pellérin thought, but the patient objected because of the cicatrices. Sinapisms were applied to the muscles and calves, and emollient gargles were used with milk. The aphonia lasted three days. Deglutition was almost impossible; a large quantity of saliva with a sanguinolent pellicle was excreted; the epigastric pain continued. In a week, under the same treatment, Madame H. was convalescent.—*L'Union Médicale*, Feb. 19, 1857.

Poisonous effects of the Narcissus Poeticus—White Jonquil.—Mr. Mellett, of Henley-on-Thames, gives some cases of poisoning by the bulbs of the white jonquil amongst some pigs. The plants were not in leaf at the time the bulbs were eaten. The symptoms were, obstinate constipation of the bowels, associated with cerebral disturbance very analogous to apoplexy. In some of the animals which died, the vessels of the stomach were found much congested. By the free use of aperients, other of the animals recovered.—*Veterinarian*, Dec. 1856.

Antimony, Slow Poisoning by.—Dr. Nevins relates the history of several experiments on rabbits with tartar emetic. Ten were experimented on. The doses were half a grain, a grain, and two grains respectively; and the animals were killed from day to day by a blow on the head, in order to observe the morbid appearances produced day by day. Some, however, died in the end from the poison alone. They had food in abundance, and were kept in a large and airy hay-loft. The fatal quantity of the poison ranged from twelve to seventy-three grains, and the period requisite for causing death, from four to

seventeen days. For the first few days no striking symptoms were evident; but after this, the animals lost spirit in a great degree, and gradually became emaciated. They continued to take food until almost the hour of death. In the earlier animals killed by the poison, there was an absence of diarrhoea, while this symptom was evident in all that lived beyond the tenth day. None of them vomited, for rabbits are incapable of this action. Cramps were not present in a single instance, but several of the animals died in violent convulsions, which lasted from a quarter of an hour before death. The mouth was severely ulcerated in several of them, "from the local action of the tartar emetic whilst being introduced into it." One of the rabbits proved to be with young, and continued to increase in size and weight for about a fortnight, after which all motion ceased in the belly. She lost weight and flesh, and died whilst giving birth to the sixth of a litter of seven dead, immature fetuses. The pathological appearances were in many cases insufficient to account for death. In the latter cases they were generally strongly marked. Their general outline was as follows:—*Emaciation* sometimes extreme, so that not a trace of fat remained in the body. *Mouth* ulcerated. *Stomach* frequently inflamed in patches, but not throughout; sometimes but rarely ulcerated; always more than half full of food. *Pylorus* frequently so thickened and indurated as to resemble cartilage under the knife. *Small intestines* frequently inflamed in patches, but rarely ulcerated. *Intestinal glands* sometimes excessively enlarged, and deeply coloured by sulphuret of antimony. *Large intestines* frequently empty, but seldom presenting any diseased appearance. *Liver* generally congested in parts; occasionally inflamed, hard, or brittle. *Kidneys* generally more or less congested, but never alike in this respect; sometimes one only; and sometimes the upper portion of one and the under portion of the other. *Bladder* generally distended with urine, and more vascular than usual. *Brain* (seldom examined) healthy. *Lungs and trachea* frequently congested, sometimes highly inflamed; the two lungs seldom alike. *Heart* healthy; generally full of black coagulated blood. In several cases there was extensive *extravasation of blood* upon the surface of the lungs and of the liver and stomach, and beneath the mucous surface of the rectum. *Distribution of the antimony in the tissues*: It was always present in the *liver* after five grains had been given; and it appeared in this organ before it was clearly proved elsewhere, except in the coats of the stomach, about which some doubt existed whether its presence there might not be owing simply to adhering antimony. It appeared next in the kidneys, and after the fifteenth day it was present in the bones. Its presence was also easily proved in the blood and lungs, in the urine and in the feces, both hard and soft. In the *brain* it was never clearly present, and its evidence in the muscles was very slight. *Elimination from the system*: The antimony was constantly passing off by the urine and feces, and it was discovered in both these excretions abundantly in some rabbits which had survived twenty-one days after the last dose had been given; and in the feces it was slightly present thirty days after the last dose. It disappeared from the liver about the fifteenth day, and from the kidneys somewhat later; whilst it was found abundantly in the bones thirty-one days after the last dose. *Effects upon the fetus in utero*: A whole litter, consisting of seven young ones, was killed by the poison previous to the death of the mother, and antimony was found in abundance in the placentas and livers examined separately; in the remaining contents of the abdomen examined in a mass; in the contents of the chest; and, lastly, in the remaining flesh and bones of several fetuses, which were well washed after all the viscera had been removed. The copper-slip test was the one employed in the analyses.—*Pharmaceutical Journal*, Feb. 2, 1857.

[For comparison, refer to the experiments on antimonial poisoning recorded in our last Report; these, in many points, are identical in their results with those described by Dr. Nevius. The absence of antimony in the brain seems to be a general rule.]

Cases of Poisoning by Strychnia.—A case of accidental poisoning by strychnia, in which four grains were swallowed, and recovery took place, under chloroform treatment, is recorded in a West Canada newspaper, but has not as yet, we believe, been confirmed by medical testimony. The patient is said to have discovered his mistake as soon as he had swallowed the poison, and applied to a Dr. Swinburn, who at once gave him an emetic. Two large emetics failed to produce vomiting. Twenty minutes after the poison had been taken, tetanic symptoms showed themselves. Dr. Bly applied chloroform, which relieved the spasms in about three minutes, and stopped them completely in ten, when a third emetic was given; in about ten minutes vomiting was produced, and this effect was kept up by the free administration of warm water. The chloroform was constantly administered for seven hours, after which time the spasms ceased.—*Pharmaceutical Journal*, Jan. 1st, 1857.

Poisoning by Strychnia: Recovery.—The following is a properly authenticated case of recovery from strychnine. On the 17th of September, 1856, Dr. H. J. Givens, of La Grange, Kentucky, was called to see a young man on whom sentence had been passed for a misdemeanour. Being very sensitive, and feeling the disgrace, he determined on self-destruction, and took two ounces of tincture of opium. Dr. Givens found him labouring under much excitement, with a full, frequent pulse, and vomiting freely. No coma or lethargy supervened, and the vomiting being encouraged, he was soon left doing well. In about an hour afterwards, Dr. Givens was again called to him, and found the muscles of the neck, throat, chest, and arms in violent action; while the lower limbs remained in a passive, straight, and rather rigid condition. In reply to inquiries whether he had taken strychnia, he at first gave an evasive answer, saying that he wished to die; but, on being assured by Dr. Givens that he desired to mitigate the violence of the pain and spasm, as there was little or no prospect of arresting the disease, he confessed that on ascertaining that the laudanum had failed to produce effect, he had swallowed two large pills of strychnia, which he had preserved for the emergency. Two large draughts of tartaric acid were at once given, with the object of neutralizing the strychnia; this was followed by tablespoonfuls every half hour of camphor mixture, alternating with doses of ether and turpentine in sugar and water. Deglutition was very difficult, and the spasms were violent for five hours, and tetanic in character. In seven or eight hours the spasms entirely subsided, leaving the patient quite prostrated, with much distension and tenderness of the epigastrium, and stricture and soreness of the throat, and of the muscular system in general. Two ounces of castor-oil, with thirty drops of spirit of turpentine, were given, and operated well. The symptoms of gastro-enteritis gradually subsided; but the inflammation and abrasion of the membrane of the throat continued, and there was hæmoptysis for three or four days. In less than a week he was convalescent, having only a little soreness of the throat and of the general muscular system. From subsequent inquiry, it was found that there were not less than ten or twelve grains of the strychnia in the pills; but Dr. Givens thinks it probable that the greater part was ejected by vomiting, which occurred soon after the pills were swallowed.—*American Journal of the Medical Sciences*, January, 1857.

[The case is one of considerable interest, but many facts are wanting to render it complete. The vomited matters ought to have been examined for strychnia; and the urine passed by the patient should have been subjected to the same process. The treatment by tartaric acid, to neutralize the alkaloid, is surely doubtful as a general line of practice, if not dangerous. A question arises, whether the laudanum, taken in such large quantities just before, had not the effect of subduing the force of the spasmodic contractions. As chloroform freely given seems to arrest the strychnia convulsions, so opium, the action of which is virtually the same, may possibly in this case have had the same beneficial influence.]

Lard as an Antidote to Strychnia.—In our Report twelve months ago* we gave the views of Dr. W. N. Pindell, to the effect that lard acts as an antidote to strychnia. Dr. W. Hammond, of Fort Riley, Kansas, in a letter to the editor of the 'American Journal of the Medical Sciences,' thus disposes of Dr. Pindell's antidote:—"I must tell you, that I have tried Dr. Pindell's antidote to strychnia—lard. I gave two grains of the poison to one dog without the antidote, and two to another with the addition of a pint and a half of melted lard. The best of the joke is, that the *latter* died in four hours, and the *former*—miserable worthless cur, who doubtless was too mean to die—is still running about in the finest possible state of health. So much for lard. We are of the opinion here that strychnia is quite harmless unless lard is indulged in."—*American Journal of Medical Sciences*, January, 1857.

Strychnia: Tests: Symptoms.—Dr. Macadam has carried on a very laborious and useful inquiry on the subjects of strychnine, its detection, and effects. In testing for this poison, he deprecates the employment of hydrochloric acid in the first part of the process. He commends the following as eminently serviceable, and to be depended on when animal matter is being examined:—"The animal matter is chopped into minute fragments, and treated with a dilute solution of oxalic acid. After standing for twenty-four hours, during which time the mass is repeatedly agitated, the whole is filtered through muslin. The contents of the filter are well washed with water, and the washings added to the filtrate. The liquid so obtained is heated to ebullition, when albuminous matters separate, and whilst warm is filtered through paper. Animal charcoal is added to the filtrate, and after repeated agitation during twenty-four hours, the supernatant liquor is decanted off, and the charcoal received on a paper filter, where it is well washed with cold water. The charcoal, now retaining the strychnine, is allowed to dry spontaneously, thereafter placed in a flask, drenched with alcohol, and the whole kept for two hours at a temperature barely short of ebullition. The alcoholic extract is separated by filtration from the charcoal, and is evaporated down to dryness in a porcelain vessel, in the water bath. The residue so obtained will generally be found in a fit condition to be at once tested for strychnine; but should such not be the case, a few drops of oxalic acid solution are again to be added, and the process repeated from the action of charcoal downwards.

Tartaric acid gives results equally successful with oxalic, whilst acetic appears troublesome on the application of the colour test. Dr. Macadam has full faith in the colour tests, and finds in practice the sulphuric acid and bichromate of potash test to be the most delicate. He adds the following table of STRYCHNINE TESTS, which may be useful to our readers:—

- A. *Potass.*—A white precipitate, insoluble in excess.
- B. *Bicarbonate of Soda* (in acid solution).—No precipitate.
- C. *Sulphocyanide of Potassium.*—A white precipitate.
- D. *Perchloride of Mercury.*—A white precipitate.
- E. *Perchloride of Gold.*—A lemon-yellow precipitate.
- F. *Chlorine Water.*—A white precipitate, which dissolves in ammonia to a colourless liquid.
- G. *Nitric Acid.*—(Cold) colourless solution.—(Heat) yellow solution.
- H. *Sulphuric Acid* (with trace of *Nitric Acid*), and *Binoxide of Lead.*—A violet, changing to a yellow colour.
- I. *Sulphuric Acid*, with *Binoxide of Lead.*—A violet, changing to a red colour.
- J. *Sulphuric Acid*, and *Bichromate of Potash.*—A violet, changing to a red colour.

Dr. Macadam sums up his remarks on strychnine poisoning as follows:—

1. That when administered to an animal, strychnine is absorbed and retained in its system.

2. That strychnine is not sensibly destroyed in the animal system during life, nor by the partial decomposition of the animal tissue consequent on death.

3. That minimum doses of strychnine may cause the animal to exhibit but partially, or not at all, the physiological effects; but such doses are the most favourable to the chemist; so that, as the physiological evidence decreases or sinks to a minimum, the chemical proof increases or rises to a maximum.

4. That tartar emetic, muriate of morphine, extract of hemlock, and conium may retard or relieve the spasms, but they do not in the slightest degree hinder the chemical isolation and detection of strychnine.

5. That by proper treatment, strychnine can be separated from organized tissue and organic material in general, as easily as any other poison, arsenic not excepted: and much more easily than most other poisonous substances.

6. That, when isolated, strychnine can be distinguished by a special test, which is unerring and most delicate, and which will detect the merest trace.

7. That the decomposition or natural decay of the animal frame may cause the destruction of the strychnine, but in this, TIME will no more easily blot out all traces of strychnine; than it will obliterate the mark of the knife of the assassin.

In conclusion, the author suggests that our law authorities in future should never hand over to the chemist fractional pieces of a subject supposed to be poisoned, but should give over the entire body for chemical analysis.—*Pharmaceutical Journal*, August, 1856.

Urari and Strychnia.—Professor Albert Kölliker has sent to the Royal Society a statement of the results of some experiments which he has lately made on the actions of urari poison and strychnia. The urari is the poison from Guvana, called also curare and woorara. The conclusions run thus:—

1. The urari causes death very rapidly, when injected into the blood or inserted into a wound; when introduced by way of the mucous membrane of the intestinal canal, its effects are slow, and require a large dose for their production, especially in mammalia. When applied to the skin of frogs, it is altogether inoperative.

2. Frogs poisoned with very small doses of urari may gradually recover, even after it has produced complete paralysis of the nerves. Mammalia may also be restored, even after large doses, provided respiration is maintained artificially.

3. The urari, acting through the blood, destroys the excitability of the motor nerves. In frogs, under its operation the terminal branches of these nerves within the muscles lose their excitability in a few minutes, while their trunks become affected in an hour or two later. If, after the nervous extremities have become paralysed, the heart of the animal be excised, so as to prevent the nerves from receiving any further share of the poison, the nervous trunks may retain their excitability for three or four hours.

4. The brain is less affected by the urari than the nerves in the muscles; still, when by ligature of the two aortic arches in frogs, the poisoning is confined to the anterior half of the body, the voluntary movements of the limbs speedily cease, while automatic movements of doubtful nature, and probably proceeding from the medulla oblongata, may be still observed for half an hour or an hour after the poison has begun to operate.

5. The spinal cord is considerably less affected than the brain by this poison, and by local limitation of the poisoning (as in No. 4), it is found that the cord retains its reflex activity from half an hour to an hour and a half; and the excitability of its white substance, or its conducting power, from two to three hours after the poison has taken effect. It is worthy of remark that in

such cases the impaired reflex activity of the spinal cord may be revived by strychnia directly applied to it.

6. The sensory nerves, as shown also by locally limited poisoning, retain their functional activity as long, at any rate, as reflex actions can be excited; and when the depressed reflex activity has been revived by means of strychnia, these nerves are found not to have been in the slightest degree injured; so that it seems doubtful whether the urari in any way affects them.

7. The nerves of the involuntary muscles and of the glands are also paralysed by the action of urari; at least, I find this to be true in the following cases—viz.:

- a. The pneumogastric, as regards its influence on the heart.
- b. The sympathetic (its cervical portion), in its relation to the iris.
- c. The nerves of the posterior lymph-hearts of the frog.
- d. The nerves of the vessels in the web of the frog's foot.
- e. The splanchnic nerves of the rabbit, as affecting the peristaltic motions.
- f. The nerves governing the secretion of the sub-maxillary gland in dogs.

8. The voluntary muscles remain perfectly excitable, but show a greater tendency than usual to merely local contractions. In general, the cadaveric rigidity of these muscles appears to set in later than usual.

9. The plain or non-striated muscles also remain long irritable after poisoning by urari.

10. The heart in amphibia is little affected by urari. Its pulsation, as well as the circulation of the blood, goes on regularly for many hours after the poisoning is established. The only thing worthy of note is, that the beat of the heart appears to be somewhat quickened, probably from paralysis of the pneumogastric nerves. In frogs poisoned with urari, the heart, when cut in two, shows the usual phenomenon—namely, that the half which contains the ganglia continues to pulsate, while the other does not; from which it may be inferred, that these ganglia are not paralysed. As to the nerves in the substance of the heart, those, at least, which are derived from the pneumogastric are unquestionably paralysed (vide No. 7).

11. The blood of frogs poisoned by urari is fluid and dark, but coagulates when drawn from the vessels, and forms a weak clot which is but little reddened by exposure to air. Directly mixed with blood, urari does not prevent coagulation; but the blood in this case also remains dark, and scarcely reddens on exposure.

12. The blood of animals poisoned by urari has the same poisonous qualities as the substance itself, but not in a degree sufficient to produce the full effects of the poison. Urari, when directly mixed with blood, loses none of its efficacy.

13. Urari in concentrated solution, applied locally to nerves, extinguishes their excitability, but only after a considerable time, and it appears to act similarly on the nerves in the substance of the muscles. Dilute solutions have no injurious operation. Applied directly to the brain and spinal cord, urari is altogether harmless, provided its absorption be prevented.

14. When artificial respiration is kept up in quadrupeds poisoned with urari, I find that, as observed by Bernard, many of the secretions become increased—as the tears, saliva, urine, and mucus of the air passages; which effect appears to be owing to the paralysis of the vascular nerves, and consequent dilatation of the vessels caused by the poison.

15. In mammalia, urari causes death by paralysis of the respiratory nerves and suppression of the respiration, which brings on convulsions in these animals as a collateral effect. In frogs, the final extinction of the functions may also be partly ascribed to suppressed action of the lungs and defective oxidation of the blood, which at length renders the heart unfit to perform its office; but it must be observed, that in this case the cause of death is not so plain,

inasmuch as in these animals the functions are in a great degree independent of the pulmonary respiration.

II. *Strychnia*.—Some experiments with strychnia (the acetate) gave the following results:

1. Strychnia has not the least influence on the peripheral nerves through the blood, which is best shown by cutting the nerves before administering the poison.

2. Strychnia paralyses the motor nerves of the voluntary muscles by exciting them to too energetic action, a paralysis which may be compared to that caused by too powerful electric currents acting upon the nerves. In frogs, when the tetanic spasms are over, the nerves often show no trace of excitability; in mammalia, they generally retain it in a slight degree, but never show the same energy of action as when uninjured.

3. Strychnia does not affect the sensory nerves.

4. The heart is not affected by strychnia, not even during the tetanic spasms, with the exception only that its pulsations are a little slower during the tetanic state. On the contrary, the lymph-hearts of frogs contract as soon as the tetanus begins, and remain in this state as long as the spasms last.

5. The tetanic fits can be brought on in two ways: first, through the sensory nerves, which, by irritating the grey substance of the spinal cord, produce the tetanic contractions as reflex movements; and secondly, through the brain, which is not affected at all by strychnia, and preserves its powers of volition and sensation. Accordingly, animals poisoned with strychnia try to move in the ordinary way, but every attempt brings on a tetanic fit, so that it is plain that the spinal cord may also be excited by the brain to its peculiar actions.

6. If the tetanus produced by strychnia has been strong, the muscles are less irritable, and pass much sooner into the state of cadaveric rigidity, which is very strongly marked, and seems to last longer than it generally does. The same early onset of rigidity may be observed in animals killed by tetanus excited by electricity.—*Medical Times and Gazette*, Sept. 13th, 1856.

Researches on Poisoning by Phosphorus.—M. Schuchardt has published a very complete memoir On Poisoning by Phosphorus and its Compounds. In many cases, especially when given in substance, phosphorus acts with energy on the stomach and intestines, producing extensive and deep ulceration, and even perforation. In other instances, when death has occurred more rapidly than usual, there is no severe structural lesion of these organs; this is chiefly observed in poisoning by the compounds of phosphorus. The lungs are often the seat of extensive sanguineous infiltration. The most constant characteristic of poisoning by phosphorus is fluidity of the blood, which is deep-coloured, coagulates imperfectly or not at all, and presents a thin layer of a peculiar rose or purple colour. Ecchymoses are also frequently observed on many organs, especially on the surface of the lung, pericardium, stomach, and skin. According to Siedbeck, the blood, on exposure to the air, does not become red, but darker than before. This condition of blood is not inflammatory, and therefore cannot be the result of the local lesions; moreover, it is often independent of these. There can be no doubt that change in the blood constitutes one of the most prominent features of poisoning by phosphorus, without neglecting the lesions of the stomach and intestines.

The acids of phosphorus have not the same action as phosphorus itself. Given in doses which would be poisonous with phosphorus, they produce no effect. The administration of alkalies simultaneously with, and again some time after, has in no way retarded or prevented death; but in these cases the local effects have been less, or completely absent. The local lesions, Schuchardt remarks, may be the result of the combustion of the phosphorus, and the acids thus formed may increase the destruction process, although experi-

ments show these to be incapable of producing it themselves. But it must be observed that the acids have not been given in a state of complete concentration, and that, in spite of this circumstance, the phosphoric and phosphorous acids injured, though superficially, the mucous membrane of the stomach. Various researches, especially those of Mitscherlich, show that phosphoric acid has much analogy in its action with sulphuric acid. Now, in the combustion of phosphorus, the acid may well be supposed to be in such a state of concentration as to be capable of cauterizing the tissues.

It further appears that the acids of phosphorus are not transformed into phosphuretted hydrogen in the animal system.

Schuchardt has experimented with phosphuret of calcium. This substance is a compound of several combinations of phosphorus, lime, phosphate of lime, and lime in excess. In contact with water, it is decomposed into the three forms of phosphuretted hydrogen (principally the gaseous) and hypophosphite, phosphite, and phosphate of lime. Phosphuret of calcium does not reach the stomach if given in substance, and therefore must be first suspended in oil. In this form it diffuses a strong odour, and slowly disengages phosphuretted hydrogen. A grain and a half of this substance, rubbed up in a drachm and a half or three drachms of oil, is generally a fatal dose, producing the same symptoms and post-mortem appearances as those which arise from phosphorus. The erosions and ulcerations are, however, neither so extensive nor so deep. They were observed in the cesophagus in a case where the phosphuret was administered in substance by the mouth, and did not reach the stomach; and in the rectum, in a case where a piece of the phosphuret was introduced into that organ. Passing to the consideration of the antidotes for phosphorus, Schuchardt commences with magnesia, as proposed by Orfila. Dr. Landerer relates a case in which a child swallowed nearly a teaspoonful of phosphorous paste, prepared for killing rats. Magnesia, rubbed up in sugared water, was given in large quantities, and the child was out of danger in eight hours. On the other hand, seven rabbits which Dr. Schuchardt subjected to experiment, all died, although the dose of phosphorus did not in any case exceed a grain. But the local lesions were less marked. It must be observed that, in other experiments, the phosphorus was given in the form of a pill; that the magnesia was given in small doses, an hour or an hour and a half after the poison; and that the administration of it was not continued for a sufficient length of time. In this respect, the experiments of Schuchardt are incomplete. M. Duplos proposed as an antidote a mixture of one part of magnesia with eight of solution of chlorine. A portion of the magnesia is transformed into the hypochlorite, having a considerable oxidizing power. The phosphorous acid and phosphuretted hydrogen are changed—the first into phosphoric acid, and the second into hydrochloric acid and an acid of phosphorus; and all these acids are rapidly neutralized by the magnesia. Bechert has obtained favourable results from this method; others, including Schuchardt, have failed; and Hollander even found death to occur more rapidly from it. Experiments with the chloride of lime did not give any more favourable results. The discovery of an antidote for phosphorus as poison has therefore to be made.—*Zeitschrift für Rationelle Medizin*, Band viii. Heft 3; and *L'Union Médicale*, December 27th, 1856.

Poisoning by Turpentine.—Dr. John Maund, of Melbourne (Australia), relates the case of E. H., a woman, aged thirty, of healthy appearance, who had for some months been living with a man as his mistress and housekeeper, and who, on his signifying his intention of leaving her, became low-spirited, and indulged in liquor. On the day of her death, a neighbour who called to see her, noticed a soda-water bottle nearly full of turpentine. At the request of the deceased, she (the neighbour) went to fetch some meat from the butcher; on returning in a short time, not finding the deceased, and receiving no answer on calling, she put down the meat and left the house. Four hours afterwards

the woman was found dead; the meat and other things remaining as the witness had left them. The position of the body, which had not been altered when Dr. Maund first saw it about forty hours after death, suggested at first that death had occurred from strychnia. The deceased had evidently sat, immediately before death, on the side of the bed; and seemed to have simply fallen backwards. The legs were rigid and stretched out, and the soles of the feet were concave; the arms were bent across the chest, and great force was required to move them from that position; the biceps muscles were contracted, and very hard. The body assumed the state of opisthotonos, and all parts were rigid, but the thighs least so. The eyes were open and prominent, and the pupils slightly dilated; the jaws were fixed, and could not be opened; the skin generally was pale, but livid in places, especially about the head. Death appeared to have occurred suddenly from tonic spasm; there was no derangement of the dress or of the bedclothes to indicate convulsion; nor were there any external marks of violence. An empty pail was found on the floor close to the deceased, as if it had been placed there in expectation of vomiting. On post-mortem examination, the membranes of the brain and spinal cord were found greatly distended with very dark sized blood, which had no unusual smell; the brain was to a less extent congested with blood of the same character. The mucous membrane of the trachea was rendered arborescent by the ramifications of a network of distended vessels, but in the intervals the membrane was of the usual colour. The lungs were gorged with dark blood; the right cavities of the heart were distended with dark blood; the left contained a small quantity. The liver and kidneys were congested, but less than the organs above-mentioned. The bladder was empty and contracted, but healthy. When the stomach was opened, a powerful odour of turpentine, which had not before been perceived, became evident. The stomach contained a small quantity of a thick fluid, resembling an emulsion of turpentine with mucilage. The duodenum and upper part of the jejunum were much congested, and the smell of the turpentine was evident in all parts of the intestinal canal. The mucous membrane of the stomach was congested, and several very large vessels distended with blood were found passing from the cardiac to near the pyloric extremity, and close to these vessels were several small ecchymosed patches. The stomach contained three ounces of semi-fluid substance, which were observed globules of what appeared to be oil of turpentine. The contents of the stomach were thoroughly mixed with distilled water; in three hours there was found on the surface a limpid fluid, which, on being removed by the pipette, was ascertained to consist of six drachms of the oil of turpentine. No strychnine could be discovered either in the contents or tissue of the stomach, or in the turpentine. The solid contents of the stomach consisted of wheat and potato-starch corpuscles.

The house was carefully searched for poison, but nothing was discovered. The bottle containing the turpentine was found on the shelf where it had been seen by the witness; the quantity removed was about six ounces, but it is impossible to say whether the whole of this had been swallowed. There was no smell of turpentine in the house, nor any suspicion of its having been taken until the stomach was opened. The deceased had several times hinted that she would destroy herself.

Dr. Maund states that he has been unable to find any other recorded case of poisoning by oil of turpentine. He observes that Christison and Taylor are not aware that turpentine has ever proved fatal; while Beck and Guy do not treat of it as a poison. Pereira and Christison state, on the authority of Professor Schubarth, that two drachms of the oil of turpentine given to a dog, produced immediate staggering, cries, tetanus, failure of the pulse and breathing, and death in three minutes. Being desirous to learn if these effects were constant, Dr. Maund, in conjunction with Dr. Youl, made the following experiments:

Experiment 1.—Half an ounce of turpentine was given to a moderate-sized dog. It immediately produced quickness of breathing, increased flow of saliva, frequent but ineffectual attempts to vomit, giddiness and apparent intoxication. These symptoms passed off, and the dog recovered.

Experiment 2.—To another dog two ounces of oil of turpentine were given. The symptoms were the same as in the preceding case, with the addition of shaking of the limbs and a greater amount of general prostration. Half an hour afterwards drowsiness was a prominent symptom, and the dog could with difficulty stand. The eyes were much congested and everted; the countenance presented the appearance of suffering and depression; the dog lay down on its side; frothy sputa ran from the mouth, and the animal seemed to be dying. Consciousness was never totally lost, for the animal could, though with difficulty, be roused by speaking loudly or by touching it. The following morning it seemed much better, and gradually recovered.

Experiment 3.—To a blind dog three ounces of the oil of turpentine were administered. For the following quarter of an hour the only effects manifested were quickness of breathing and increased flow of saliva. Giddiness and general intoxication then supervened; in half an hour the dog lay on his side with the legs stretched out, and, excepting that the eyes were not everted, presented much the same appearance as the second. On the following day it gradually recovered.

Experiment 4.—To another dog four ounces of turpentine were given. In two or three minutes there was great excitement; the respirations were 108 in a minute; clear saliva streamed from both sides of the mouth, but there was no giddiness or sleepiness, as in the other cases. Half an hour after the turpentine was given, the dog broke his cord and ran about as if greatly excited; but he would come when called, and appeared perfectly tractable and docile.—*Australian Medical Journal*, October, 1856.

[A long list of other cases of poisonings, recorded in the British Journals, lies before us. But in the limited space at command we have selected only such instances as offer some new or marked feature in pathology, physiology, or forensic practice. The instances of poisonings by stramonium, ammonia, and turpentine, are all novel in their way; and the last is of special interest, as showing after death appearances which admitted easily of a turn in a false direction. Had a man of feeble observation and clumsy manipulative skill made the post-mortem in this case, or had it been handed over to a man who had prejudged, or whose craving for revenge was strong, or who was content to believe solemnly in every scrap of circumstantial evidence, or who had sold himself to the business of advocate, medical or otherwise, under such circumstances, by a movement imperceptibly slight, this case could have been transformed into a horrible tragedy, and unsuspected turpentine have become the efficient cause of two deaths instead of one.]

II. INSANITY.

Detection of Feigned Insanity.—Dr. J. C. Bucknill has some excellent observations on that important forensic point—the diagnosis of insanity. He considers that in the great majority of cases feigned insanity may be detected “by the part being over-acted, in outrageousness and absurdity of conduct, and by the neglect of those changes in the emotions and propensities which form the most important part of real insanity. Sometimes mania is simulated, the man howls, raves, distorts his features and his postures, grovels on the ground, or rushes about his room, and commits numberless acts of violence and destructiveness. If he has had the opportunity of observing a few cases of real insanity, and if he is a good mimic, he may succeed in inducing a person who only watches him for a few minutes to believe that he is in the

presence of a case of acute mania; but if the case is watched for a few hours or days, the deception becomes apparent. No muscular endurance, and no tenacity of purpose, will enable a sane man to keep up the resemblance of acute mania; nature soon becomes exhausted, and the would-be patient rears, and at length sleeps. The constant agitation, accompanied by symptoms of febrile disturbance, by rapid pulse, foul tongue, dry or harsh or clammy, pallid skin, and the long-continued sleeplessness of acute mania, cannot be successfully imitated. The state of the skin alone will frequently be enough to unmask the pretender. If this is found to be healthy in feeling, and sweating from the exertion of voluntary excitement and effort, it will afford good grounds for suspicion. If after this the patient is found to sleep soundly and composedly, there will be little doubt that the suspicion is correct."

Speaking of chronic mania, Dr. Bucknill observes that it may be imitated; and that if this should be done by an accurate observer of its phenomena, who also happens to be an excellent mimic, it cannot be denied that he may deceive the most skilful alienist. Fortunately for the credit of psychologists, insanity is rarely feigned, except by ignorant and vulgar persons, who are quite unable to construct and act out a consistent system of disordered mind. It must be remembered that all the features of every case of insanity form a consistent whole, which requires as much intelligence to conceive and imitate as it does to conceive and imitate any dramatic character. The idea which the vulgar have of madness is of quite a different kind. They represent it as a monster, half man, half beast; the emotions they represent unchanged and human, the intellectual functions they represent entirely perverted, grovelling, and bestial. They think that madness utterly alters the character of a man's perceptions and destroys his judgment, so that he not only ploughs the shore and sows salt for seed, but that he cannot recognise his own son, or avoid the destruction of his life. In more homely cases it will be found that men feigning insanity pretend that they cannot read or write, or count ten correctly, or tell the day of the week, or how many children they have; they answer every question wrongly, which a real lunatic who could be made to understand the question and to answer it at all, would certainly answer right. In illustration of these facts, he subjoins the following case of simulated insanity reported by Dr. Saell, in the '*Allgemeine Zeitschrift für Psychiatric*,' December, 1855. In the House of Correction at Ebernach, a man attempted for some years to escape punishment by imitating insanity. He would not work, he danced round his cell, sang unconnected words and melodies, and made a peculiar booming sound. When any one went into his cell, he put on a forced stupid expression, he glanced at people sideways, but generally fixed his look on the floor or on the wall. To questions he gave either no answers, or answers altogether wrong; for instance, to the question, How many days were there in the week? he answered, ten. He would not recognise the people whom he constantly saw; he said he had never seen me, and did not know me. When I asked him if he knew who I was, he said, a man. I placed before him a keeper with whom he daily had intercourse, and asked him if he knew who this man was; he said at first he did not know, and then he said he believed he was a soldier. There could be no doubt there was deception in this case. The unmasked deceiver tried to play his part for some time, and then gave it up."

In the detection of feigned insanity, much stress has been laid by writers upon the suddenness of the attack, as distinguishing it from real insanity, the invasion of which is gradual. This point of diagnosis must be accepted, however, with much caution. Dr. Bucknill has known real cases of mania manifest themselves with the utmost suddenness; he has known patients who went to bed apparently in good health, awake in a state of mania; he has known patients become suddenly maniacal under the influence of exciting and denunciatory preaching, and during other conditions of intense temporary excitement. Doubtless, in all these cases the brain was previously

prepared for the sudden explosion, but the symptoms of latent disease had not been of a nature to attract any observation, and therefore in a diagnostic point of view the sudden outburst of real insanity must be accepted as possible.—*Asylum Journal*, January, 1857.

III. HYGIENE.

The Measle of the Pig.—Dr. Alex. Flemming, of Dublin, has published a report on this subject. He was requested to undertake the task by the *Committee of Provision Merchants of Cork*. The questions submitted by the Committee were as follows; the answers are those of Dr. Flemming and his colleague, Professor Smith. We have epitomized the replies.

1. *Question.* What is the nature and origin of measles in the pig?

Answer. The measles of the pig is an animal parasite, the *Cysticercus Cellulosa*, or bladder flesh-worm. It is highly probable, if not quite established, that measles originate in the eggs of the tape-worm which infest the lower bowels of the dog. Each mature joint of the last parasite contains many thousand eggs. These, when voided by the dog, are resolved into a fine dust, are scattered by the wind, and thus mixing with the food or drink of the pig, enter its body, and are there converted into the measles or flesh-worm.

2. *Q.* Are all pigs measly?

A. All pork is not measly. In the specimens of healthy pork we found no trace whatever of the parasite in any stage of development.

3. *Q.* Can pork be measly, and that condition be invisible to the naked eye?

A. In the specimens of both slight and badly-measled pork submitted to us, the worms were all visible to the naked eye. All appeared to have reached the same degree of organic growth; and in none of the specimens, healthy or otherwise, could we find eggs, or the slightest trace of the parasite in an earlier stage of development.

4. *Q.* Is there any analogy between "measles" in the pig, and the disease known by that name in man?

A. None.

5. *Q.* Is fresh measly pork wholesome?

6. *Q.* Is cured measly pork wholesome?

A. We cannot regard bad measly pork, fresh or cured, as wholesome food for man. We see no valid reason for regarding "slightly measled" pork as unwholesome; but it must be well cooked. We believe that the life of the parasite is destroyed by the process of curing.

7. *Q.* What is the chemical composition of the measles?

A. Chemical analysis could not aid much in this inquiry.

The Reporters suggest that the rational guide to the treatment of the disease will consist in providing the pig with thoroughly clean food and drink, promoting its general health, and removing it from the neighbourhood of dogs affected with tape-worm.

In their further remarks, the authors follow the views of Küchenmeister and Leuchart as to the transmissions of the entozoa.—*On Measle in the Pig, and on the Wholesomeness as Food for Man of Measly Pork.* By Alexander Flemming, M.D. Dublin, 1857.

Sanitary Improvements in the Manufacture of Chemicals.—M. Kuhlmann, who has many large manufactories of artificial soda at Aachen and elsewhere, has completed a system for condensing acid vapours (chiefly hydrochloric), by making the condensation of the acid vapours the basis of a manufacture of salts of barium. He places after the ordinary condensation apparatus, earthen vessels, containing native carbonate of baryta in masses, moistened with water.

After passing five or six of these vessels, the whole of the hydrochloric acid, uncondensed by the first or ordinary process of subjecting them with an excess of steam to a gradual cooling before entering the chimney, is held in solution as chloride of barium. To complete this process in the Amiens factory, he makes the vapours passing from the baryta vessels go through a large earthenware cylinder, having within it a wheel with flat arms. As this plays round, it makes the vapours traverse a fine-rain solution of carbonate of baryta. By a further plan, very simple in its way, M. Kuhlmann forms from his chloride of barium artificial sulphate of baryta, and reproduces his hydrochloric acid in a free state.

Kuhlmann has also applied a system of condensation to the chemical products in the manufacture of lamp-black. The vapours, consisting of the ammonia mixed with the burnt air of the furnaces, are driven into a stone trough containing an iron mill with wings. This is covered by a semi-cylinder of metal. As the vapours pass through the cylinder, the mill throws out a shower of fine drops of solution of chloride of manganese, the residue of the manufacture of chlorine. All the ammonia is thus condensed into the muriate. The liquid condensed consists of carbonate and sulphuret of manganese and coal soot; it is easily used in making sal ammoniac, and can be applied to the manufacture of artificial manures. This plan diminishes the smoke of the furnaces; but the author has not found that the quantity of ammonia condensed is sufficient to repay the expense; mechanical power may therefore have to be employed to facilitate the chemical action of bodies which chemically react on each other.—*Journal de Pharmacie et de Chimie*, Nov. 1856.

Detection of Ergotized Rye.—To detect ergotized grains in corn, M. Payen gives the following instructions:—The ears affected are distinguishable by many of the grains in it being replaced by a violet-brown substance, almost black, of larger volume, and frequently twisted, brittle, having a grey mass inside. The ergot may be distinguished even when no larger than the healthy grain, or when broken into several pieces, not only by its external dark colour, but also by its lightness; it floats on water, whereas the healthy grains sink to the bottom.

One-eighth to one-tenth per cent. of ergot in bread may cause gangrene and loss of the limbs, and the poisonous effect is more powerful on animals than on man. In poultry, the phalanges fall off; even the beak is detached. In pigs, the nails fall off, and the animal dies.

The dangers of ergot may be avoided by properly cleansing the grain, by the hand, by sifting, or by fanning. These various processes would not be expensive, as the ergot would produce profit, sold for medicinal purposes.—*Journal de Chimie Médicale*, Dec. 1856, and *Chemist*, Jan. 1857.

In the 'Journal of Public Health' for Jan. 1857, Dr. Pickles publishes part of a classical paper On Vegetable Poisons, which we reserve for notice until its conclusion.

HALF-YEARLY REPORT ON MICROLOGY.

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PART I.—PHYSIOLOGICAL MICROLOGY.

NERVOUS SYSTEM AND ORGANS OF SENSE.

Structure of the Nerve-Cell.—In a communication to the Academy of Sciences, Stilling stated that he found a decided envelope as well in the central nerve-

cells as in the peripheric ones, which appears to be formed of innumerable very fine tubules, like those composing the network of the primitive nervous fibres. The parenchyma, likewise composed of a mass of such tubes, equal to those of the primitive fibres, but forming by their close union a sort of glandular tissue, is closely connected with the envelope externally and the nucleus internally. The nucleus itself has a constitution analogous to that of the parenchyma, having, like it, a double contour, interrupted by the small tubes passing externally towards the parenchyma of the cell, and internally towards the nucleolus. The nucleolus he states to be composed of three concentric layers, from which prolongations may be traced as far as the limits of the nucleus. All the central nervous cells are furnished with prolongations composed of tubes of the same nature as those constituting the parenchyma of the cells.

Erectile Apparatus of the Eye.—Dr. C. Rouget, in a paper read before the Academy of Sciences,* brings forward new facts regarding the elementary structures of these parts. He refers to the eyes of birds, the principal mammals, and man. At the adherent border of the ciliary processes he describes a layer of bundles, which is the layer of circular fibres of the ciliary muscle. This in birds is formed, in front, of transversely-striped fibres; behind, of regular fibres, rounded, refracting, and analogous to the fibres of yellow elastic tissue, but containing here and there fine and regular transverse stripes. In mammals the circular layer is formed of bundles of dartoid fibre, smooth, and containing elongated nuclei, in the midst of which run plexiform divisions of ciliary nerves. Outside the annular ciliary muscle, in a kind of stroma of the choroid at the posterior edge of the ciliary region, are bundles of radiated ciliary muscle. These bundles, formed in birds of striated fibres, compose at least two muscular plains; one, external and posterior, is inserted after a short course into the posterior region of the bony ring of the sclerotic; the other, covered at its origin in the choroid by the former, is prolonged anteriorly as far as the anterior margin of the bony ring where a portion of the fibres are inserted; whilst the remainder is attached to the membrane of Descemet, the true elastic tendon of the anterior plain of radiated muscular fibre. This is the muscle described by Crampton and others, who, according to Rouget, were deceived as to its origin and true meaning. The muscular apparatus of the iris is only the continuation of the deep plain of the ciliary muscle (circular fibres). In birds, the transversely-striated bundles enter the iris obliquely, and, keeping in the course of this membrane a generally circular direction, cross each other more or less obliquely. In man, and most mammalia, the same disposition obtains as in that of the iris of birds. At the anterior edge of the ciliary muscle the bundles of the deep layer of this muscle, continuing their direction obliquely transverse, penetrate the iris; and then, covering the external surface of this membrane, and entangling the vessels in their meshes, they cross each other more or less regularly, arrive at the edge of the pupil, and form the ring of circular fibres at the surface of the iris, the sphincters. The author then speaks at length of the mechanism of the parts, and of the functions they play in adapting the lens to vision, showing how the contractions of the circular bundles of ciliary muscle force the blood returning from the iris into the ciliary folds, which, by compression, affect the convexity of the lens.

VASCULAR GLANDS.

The Spleen.—Billroth† details his microscopical observations on the spleen of the amphibia, of fishes, birds, and mammals; and upon the anatomical data, enters at some length upon hypotheses as to the development of the red blood-

* Archives Générales, p. 112. No. 3, 1856.

† Beitrage zur Vergleich. Histologie der Milz: Müller's Archiv, Heft 1, p. 88. 1857.

globules in the red spleen-pulp, just as the lymphatic corpuscles are formed in the alveolar substance of lymphatic glands. He leaves quite undecided the question of the function of the spindle- or the star-shaped cells, and does not think that it is proved that the cavernous network possesses any contractility, though he allows it elasticity.

GENITO-URINARY SYSTEM.

On the Minute Anatomy of the Vas Deferens.—Ludwig Fick,* after referring at some length to the method of contraction, and the mechanism by which the semen is carried along this canal, and comparing the various descriptions of the vessel by Arnold and Kölliker, goes on to describe certain parts of the canal as he found it in man and in the dog. Examining that part which has the smallest calibre and the thickest wall, he describes the contractile parietes as consisting, not of three isolated fibrous layers, but rather of a fibrous ground-work, tearable into concentric circular shreds, in which is interwoven a network with elongated spaces. This trabecular work is developed chiefly on the outer and inner side, whilst the concentrically-splitting fibrous layer forms by far the largest mass of the wall of the tube, being placed in the middle. The trabecular texture appears not to arise from any preformed isolated fibre cells, or to have any preformed morphological existence, like the striped or the smooth muscular fibre, but is like elastic tissue, or that of the arterial fenestrated coat. In the dog, the entire wall is composed of two layers, of which the thicker outer part shows a very coarse texture, whilst that next to the mucous membrane shows the same kind of texture, only of very fine fibrous elements. In proportion as we approach the prostate, does the fibrous layer, which is parallel to the calibre, increase both on the exterior and the interior. The author by no means looks upon these structures forming the vas deferens as being muscular, and is strongly opposed to tissues being called muscular because they evidence phenomena of irritability, which so many tissues do that differ from each other, as well as from true muscle.

CARTILAGINOUS SYSTEM.

Cartilage Cells, their Development, &c.—F. Lachmann* brings forward a specimen of enchondroma, and describes it minutely, with special reference to, and with the intention of illustrating the question of, the cellular nature of the so-called areolar tissue-substance and the disputed cell-character of bone and cartilage corpuscles, whose membrane is looked on by some only as the innermost layer of the matrix surrounding the bone or cartilage cavities. On microscopical examination, most parts of the chondrine-giving matrix were found to contain hollow spaces (cartilage cavities), rounded or elliptical or ovate, surrounded by a thick membrane (the cartilage capsule of Virchow), which was distinctly distinguishable from the surrounding substance, with which it was most intimate, and contained round or oval bodies which did not fill them. These are the bodies looked on by Müller and others as nuclei of cartilage cells, and by Virchow as the special cartilage cells themselves. By the author they are called cartilage corpuscles, and contained chiefly granular material, and in many parts of the tumour fat drops. In many cartilage cavities, in the place of these rounded bodies, others with hollow radiating, and often branched, processes existed, which reached in general to the capsule of the cartilage cavity. Many were of a form intermediate between the round and the radiating. Both in the case of the round and the radiating they were chiefly single, but sometimes there were more in the cavities; and they were surrounded by fluid, not being imbedded in any fine material. Oftentimes on

* Müller's Archiv, p. 473. Aug. 1856.

† Ibid., No. 1, p. 15. 1857.

trying to insulate them, the projections burst. The transition of the corpuscles (soon to be described) into cartilage bodies imbedded in the matrix, renders it improbable that they are only the coagulated contents of the cartilage cavities, but it is difficult to make out whether they are the equivalents of cells, or only of cell-nuclei. At times, a slender, pale contour was seen to surround the bodies, which one might look upon as the raised thin membrane of the cell. The author inclines to look upon these bodies as being cells, partly from the close fitting of the fine membrane to the coagulated contents, and from the fact that one or two rounded bodies are often seen within them, appearing like nuclei, with one or two nucleus corpuscles inside. The character of fresh cartilage, and the effects produced upon its corpuscles on the addition of a solution of chloride of sodium or sugar, corroborate this view. By the alternate use of these solutions and pure water, one can make the cartilage corpuscles shrink repeatedly and again swell out, the nucleus becoming obscured and again cleared, and so on. The author then seeks to show the identity of these bodies with the radiating cartilage and bone corpuscles imbedded in a homogeneous matrix. He points out and delineates cartilage corpuscles, in which exist radiating corpuscles, the cartilage cells, which do not at all limit themselves to the cavity of the cartilage capsule, but reach, as it were, through the limiting membrane into the matrix beyond. He says he had not been able, as Virchow did, to see a bulging out of the wall, but the processes appeared simply to pierce through and pass into the homogeneous or slightly granular matrix, in this way completely simulating the so-called bone cells; and also, as in their case, an anastomosis of the processes of different bodies existed. Nevertheless, unlike the case of bone where the space is filled by a homogeneous mass, and where no capsule exists, the body of the cartilage cell remained separated by fluid from the thick capsule membrane. This difference is, however, balanced, seeing that in the cartilage cavities a firm chondrine-yielding mass is deposited for the most part before the cartilage cell has burst through the wall of the capsule; and so cartilage corpuscles are often seen lying in a space filled with a slightly granular, more or less firm, material, which is surrounded by a thick capsule membrane. Every gradation of form exists between those cases in which the contents of the capsule have quite a different appearance to the surrounding parts, and those in which they are no longer to be distinguished from the matrix; and by the observation of these facts the author thinks he has established transitions from the round cartilage cells lying in a cavity with a thick capsular membrane, to that form which anatomically only differs from solid bone by the want of Haversian canals. He thinks he has proved that the radiating cartilage corpuscles of osteoid cartilage arise from changes in the round cartilage cells, and that therefore the membrane which can be detected and isolated on treating the cartilage with re-agents is the true membrane of bodies which must be looked upon as cells, and not as merely the innermost layer of the surrounding matrix. He proceeds to show how the process of ossification may be carried on according to the above plan. He supposes the cartilage cell to put forth hollow projections, which grow until they reach the capsule of the cavity in which they are, and even to pass into the surrounding matrix. During the growth of these projections, or it may be before, a space is formed between the cell and the capsule, either by an increase in the size of the cavity, or a shrinking of the cell; and this space, at first filled with fluid, becomes filled with a firm material, either deposited throughout at once or more gradually from the periphery to the centre. This material becomes very like the surrounding matrix, and the projections of one cell become united to those of another. In the mean time the matrix of the cartilage, at first yielding chondrin, changes into a glutin-yielding material containing lime salts, and along with this the firm material within the cartilage capsule becomes not a chondrin, but a gluten-yielding material, containing also lime salts. The calcification appears first at one time outside, at another time inside, the cap-

sule. In cartilage engaged in formation, the cartilage capsule must be looked upon as the mother cell of the cartilage cell. Very often two or more capsules are seen aggregated and surrounded by a large outer and investing capsule-membrane, filled with fluid or firm material, and having the same relation to the capsule as to the included cartilage cells, and thus the capsule must be considered as an altered cell-membrane. Just as the contents of the inner capsule become gradually blended with the surrounding material, so also do those of the outer ones, becoming gradually less clear until they at last cannot be seen. The author considers the cartilage capsules to arise from the cartilage cells by endogenous cell-formation. In a very few cases radiating cartilage cells are to be seen in cavities which are surrounded by a membrane possessed of radiating projections, which membrane lies in a cavity surrounded by a capsular membrane; and as the projections of the outer membrane do not correspond to those of the cartilage cells, it cannot be looked upon simply as the membrane of these bodies raised up from them.

The developmental process of cartilage is described by the author much as follows:—In the original formation, cells of cartilage, new cells, cartilage cells, or corpuscles, are developed, and the membrane of the mother cell becomes the cartilage capsule; whilst the new cells, by endogenous cell-formation, equally pass into capsules. Their membranes become greatly thickened; and between them and the membrane of the mother cell, a firm material, containing lime, is found. The process advances, the cartilage cells grow by endogenous growth, and the whole cartilage increases with the deposit of firm material in the capsule. When cartilage ossifies, or assumes an osteoid development, the true cartilage cells no longer form subordinate cells, but grow out in radii, and the same changes as described above take place in them.

Cartilage, Intervertebral, Alterations in.—Luschka* has communicated a lengthy paper on the alterations which take place in the intervertebral cartilage, according to age. He gives special attention to the three elements entering into the formation of the intervertebral substance in earliest infancy—viz.: 1. The cavity and its contents; 2. The cartilaginous plates; and 3. The annular fibres. The cavity at this age seems to amount to half the size of the whole intervertebral substance, the inner surface being smooth and even, and to contain a clear, colourless, transparent, gelatine-like material, in which are seen with the unaided eye many whitish clumps, which, when examined microscopically, are found to possess great variety of form—being spherical, club-shaped, and pedunculated; also an irregular mesh-enclosing, trabecular tissue is seen. Most of these forms appear to be an aggregate of hyaline, sharply-defined, dark drops; but closer investigation shows them to be true cells, having a transverse breadth of 0.04 millimetre. Their walls for the most part have a double contour, and are in parts so united among each other, that the entire object appears as a fine network whose spaces contain a homogeneous substance. The elements of a majority of these clumps of cells are not united or covered by any special material, but in many, a structureless connective-like substance forms the bed for the cells. The contents of the cells are not uniform: one often finds a rounded granulated nucleus of 0.01 millimetre broad, even without the addition of any re-agent; but on adding acetic acid, almost every one is seen to contain a nucleus. A few only of the cells have finely-granulated contents, and even then they contain almost regularly one or more drops of a hyaline substance, which is sharply defined, and distinct from the surrounding molecular mass. Such free drops are also seen between the cells, arising either from exudation through the cell-wall, or melting down of the cells. Whilst the homogeneous transparent cells are predominant in the intervertebral gelatinous substance of subjects in earliest infancy, in that of the twelve weeks'

* Virchow's Archiv, 1856.

fetus, which already possesses cavities filled with gelatinous substance, we find an excessive number of finely-granulated nucleus-holding flat cells, very like the epithelium of the mouth, and many of the forms undergoing increase. For not only are more nuclei found in a cell, but also larger mother cells, with numbers of offspring cells; and in many human fetuses, the gradual transition from the quite granulated to the completely hyaline cell may be seen. Very often the cells, along with a nucleus, contain a small, clear, homogeneous drop, which becomes larger and larger until the whole cell-contents becomes homogeneous and fluid, and at last free by the destruction of the cell walls. This is seen in a fresh and young fetus, even without the addition of water. The same clear drops are to be found in the interior of cells of the intervertebral substance of certain fishes, and the author looks upon this as a product of cell activity. He found in very young mammalia-embryos, no cavities between the already cartilaginous vertebrae, but in their place a small number of cells which had the greatest similarity to those of the chorda dorsalis of these animals, and which he thinks increase by endogenous formation, and suddenly pass into a fluid state, by which the formation of cavities is assisted by the dissolution of the surrounding tissues.

II. The cartilaginous plates are found to contain three kinds of substance. Near to the limits of ossification exists the well known pyramid-like cartilage-cell; next comes the hyaline cartilage, with elongated small cartilage cells, whose long axis runs parallel with the surface of the vertebrae; and in the third place, the layers next to the gelatine-holding cavities possess in part a quite homogeneous soft matrix, and partly fine fibres radiating towards the cavity; and in it also exist irregularly-placed cells containing nuclei with from one to two nucleoli. This matrix passes so gradually into the contents of the cavity, that it appears to be concerned in the process of fluidification.

III. The fibrous ring at this age, in proportion to that of the adult, has a very slight thickness, but exhibits, on section, a clearly laminated edge. The lamination extends to the limits of the gelatine mass, recognisable by the naked eye. When this is removed, the inner surface of the ring appears almost as smooth as the surface of the cartilage discs next to the cavity. In the finer structure of the fibrous ring of the newly born, one perceives, on a fine perpendicular section, fibrillated cellular bundles, circumscribing large interspaces of various forms. The greater number of these bundles are fibres, which, proceeding from the destruction of the matrix of the cartilage plates, are in direct continuity with them; and lying between the fibres as well as in the mesh-work, are large and small cartilage cells, and also areolar-tissue corpuscles, in every possible stage of development to elastic fibres. The cellular-tissue bundles branch out in every direction, and the processes of the cells are united into a network, enclosing the round mesh spaces, the cell nuclei existing almost everywhere, and forming thicker, darker spots, like knots in the network. The very fine elements of the network which exist in the newly-born, are in the adult very thick. Towards the cavities, the substance of the fibrous ring is markedly softer; and often one sees numerous fine fibres ramifying in every direction. In old age, the intervertebral substance shows great numbers of anomalies, both in the cavities, the cartilage discs, and the fibrous ring. In old people, the cavities are sometimes extremely small, at other times very capacious, but generally only a small slit. Very often they are two in number, owing to the original gelatine-like nucleus being turned into a felty mass crossing the original cavity. In one case of a person twenty years old, the cavity in the lumbar region, like that in infants, was very large, the synovia-like fluid containing many fine cartilage cells and other material, the result of dissolution; and the wall of the cavity was not smooth, but velvety. In later life, sometimes the cavity is filled with a reddish succulent mass, which passes into the neighbouring tissues, destroying the corresponding cartilage discs; and this mass seems to arise from the spongy bone-substance of the vertebrae, not from

any changes in the cartilage. The masses of elemental forms which are found are partly portions of cartilage plates and fibrous rings, containing colouring-matter, or blood, or pigment; and in part also new formations; and amongst the latter exist cells concerned in the development of cellular fibres, and also bloodvessels, which, being in connexion with those of the bone-substance, often form loops and enlargements. In decrepid people, the cartilage discs are almost always of a dirty-yellow colour, and very thickened, and frequently beset with fat, either free or enclosed in cartilage cells. Very often there is a partial dissolution of the bone; and often the destruction of the cartilage is ushered in by an aneurysmal dilatation of bloodvessels entering into the pores of the bone, and looking like apoplectic spots. The author here speaks of alterations in the bone tissue which are not comprehended in this part of the Report, as they are obviously pathological—such as the hardening and polishing of the bone, the ossification of the annular fibres, and exostoses from the vertebræ, &c.

PART II.—PATHOLOGICAL MICROLOGY.

TUMOURS, MORBID DEPOSITS, EXCRESCENCES, ETC.

Cartilaginous Tumours. By H. Meckel.*—Apart from those forms which are of a mixed nature, the author divides these growths into five main varieties: I. Ordinary Enchondroma; II. Stellate-Cartilage Tumours; III. Fibro- and Reticular-Cartilage Tumours, so called on account of the disposition of the intercellular substance; IV. Granular-Cartilage Tumour; and V. Pouched-Cartilage Tumour (*schlauch-knorpelgeschwulst*). The two first he looks upon specially as enchondroma, and the third form as simply an hypertrophy of cartilage. In the fourth, the cartilage tissue retires, as it were, towards a mass of cellular tissue; whilst the fifth he considers should be only doubtfully looked upon as cartilage. All the varieties appear to be formed by bloodvessel-bearing cellular tissue and special cartilage-elements, the union of which is best seen in the ordinary cartilage tumours.

In the first variety, the cellular tissue, in which are the cartilage cells, is to be looked upon as their matrix, and is formed first, being divided into large and small meshes, inside which new material is formed into cartilage, either under the influence of neighbouring bone tissue, or from other causes. Seeing that other fluids and tissues of a different chemical composition may form in the cellular network, the cartilage formed within it may be looked upon as a secretion.

The amorphous material out of which the tumour arises seems to possess a twofold organization, and to be able to separate itself into colloid tissue and chondrin tissue; the one for the function of adhesive union, the other as an elastic support. The opposition of these two tissues and functions is common in enchondroma, as in healthy tissue-formation; the common capsule, and also the various septa of the mass, being of pure areolar tissue, and the compartments being variably filled with fine cartilage-tissue, or being more or less cyst-like, the cartilage appearing as a syrupy or gelatinous fluid. The firm cartilage-masses lie as irregular angular masses, mosaic-like, and united by a stroma of cellular tissue, whilst the soft cartilage-masses appear as closely-throated cyst-like spaces, semi-fluctuating. A transition of this soft cartilage-mass into gelatinous cancer seems never to occur, although from the alveolar structures some resemblance exists. Among this class, the author describes a spurious transition-form of cellular tissue and cartilage, which appears to be a form of enchondroma passing into fungus and medullary excrescence, such as affects the iliac bones, the sternum, and the bones of the hand in old persons.

Varieties containing the elements of pure cartilage are numerous, the carti-

* *Annalen der Charité-Krankenhaus zu Berlin*, p. 60. 1856.

lage elements appearing to arise out of the vascular cellular-tissue of the tumour, either at first as clumps of gelatinous material containing one or more nuclei, becoming rounded later on into membranous cells; or else without any obvious gelatinous stroma, small nuclei form directly into closely-packed cells. The small cartilage cells are sharply contoured, moderately firm, with firmly granular contents, and rounded, angular, caudate, or dentate in form. External to the cells is secreted a homogenous material, which becomes the inter-cellular tissue. This generally is as clear as water, and gelatinous or syrupy in consistence, the cartilage corpuscles causing a slight cloudiness in it, in the quickly-growing cartilage; but in cachectic cases often containing a mixture of blood. Sometimes the entire tumour appears like an aggregate of cysts, with gelatinous contents like what is called cysto-sarcoma; but yet, on investigation, the whole mass may be considered as cartilage.

The next form which comes in succession presents a part of the extra-cellular material as forming regular laminae around the cartilage cells, a form leading to great variety of nomenclature. The author then proceeds to show how very large cartilage-corpuscles arise from small cartilage-cells, and how the laminated condition arises out of the activity of the cells. He describes the increase of cells in the cartilage of enchondroma as arising partly by isolated productions of new cells in the matrix, partly by the formation of many-nucleated mother-cells, and partly and chiefly by the division of cells. Excepting calcification, changes inside the cartilage cells are not of importance. In old cartilage, deposits of fat and occasionally of the colouring matter of blood, occur, which have found their way by endosmosis, and assume a granular or crystalline form. Cartilage corpuscles in enchondroma seem to have but little tendency to calcification or ossification, which is of importance pathologically and therapeutically, for in old enchondromata, when a complete ossification does occur, the growth of the cartilage tumour becomes arrested, and a bony tumour remains. This slight tendency to ossification proper seems to depend on general cachexy, and partly on local causes. Irregular calcification seems to be unconnected with bloodvessels, and in the process, the cartilage cells themselves remain free from calcification, as in normal cartilage, the process taking place in the thickening laminae of the cartilage cells. Sometimes the whole amorphous inter-cellular substance is finely or densely calcified, either before or at the same time with the calcification of the laminae. This species of calcification comes the nearest to normal ossification, but the whole of it remains granular and crumbling, and the cartilage-corpuscles are never like the normal cartilage-corpuscles. Ossification with true bone-tissue-formation occasionally occurs in enchondroma, and may best be seen in the periosteal and fibrous investments of enchondroma of the finger, femur, &c., in which, at the limits of the ossification, transparent cartilage-tissue with stellate cells are seen, and further inwards, opacity of the inter-cellular and laminated substance.

The author holds the presence of cartilaginous growths to be an evidence of a scrofulous or rachitic taint; and, after detailing several cases too lengthily to be here introduced, he alludes to the general course and locality of such growths, and also to their treatment. He then proceeds to consider the form of "Stellate-Cartilage" Tumour. This he describes as being, on section, like the former in general characters, but as having the following peculiarities:—In the first place, this form of tumour occurs at a later period of age, and affects generally soft parts, fibrous membranes, and, though seldom, bony tissue possessing a diploe. Occasionally several tumours exist at the same time, and in some cases they return after extirpation. When in soft parts, they grow to the size of an apple, are very elastic, and covered by a capsule formed by a smooth layer of cellular tissue, and are very moveable. The outer surface is tuberos, lobulated, and of a yellowish-brown or white colour; and on section, presents an obscure separation into lobes and lobules by means of fibrous and

areolar tissue. On microscopical examination, a scaffolding of very fine areolar tissue, with collapsed cells and finely-fibrillated inter-cellular substance, is visible. The fibres coming between the cartilage elements are readily to be seen. Some cartilage cells lie distributed or closely pressed between the cellular-tissue fibres, or exist in nests up to ten or fifteen in number. In those parts which are remarkable for firmness, the cartilage cells are surrounded by inter-cellular substance and laminae, as in the first form, before described; but the greatest part of the material giving the special character to the tumour contains a soft gelatinous, peculiar kind of cartilage. In the earliest developmental steps one sees inside the small meshes of cellular tissue a conglomeration of closely-adhering cartilage cells, which either fill the entire mesh, or are suspended free within a clear slimy fluid. In the last case, the conglomerate appears as large mother cells with a simple outline, and having no capsule, but only exhibiting a smooth streaky mass; they sometimes appear as membranes and cylinders, in the same manner that epithelium sometimes does. The next developmental step is, that the hitherto rounded cartilage-cells become stellate, whilst at the same time they become so separated by a clear intervening substance that the cells appear to remain fixed to each other by numerous projections. The intervening substance is very soft and tender, and so transparent that the cells oftentimes look like empty spaces, and require the addition of iodine solution to make them visible: very often it is nothing more than a tenacious fluid. Ossification seems never to take place in the stellate cartilage. Of this form the author relates two or three cases.

The next form, the "*fibro-cartilage* and *reticular-cartilage* tumour," appears to be rare. It generally forms as an outgrowth from permanent cartilage.

The "*granular-cartilage* tumours" comprehend those formations which evidently exhibit the lowest development of cartilage. In them a cellular tissue of various kinds always forms the matrix in which small cartilage-elements are strewed. They are the same as described by Lebert as *epulis*, *sarcoma* of the upper jaw, *dura mater*, and other places. According to Meckel, they almost always arise from bone, and exhibit slowly-growing rounded, tuberous, occasionally fungous, luxuriant masses, with somewhat plentiful blood-contents. They also have more or less the character of malignancy, returning three or four times after extirpation, but not extending farther in the body.

On microscopic examination of this form of tumour, clear portions are seen between the fibres and spindle-shaped cells of the matrix, like rounded discs, or irregularly indented. These are finely granular, and occasionally have no nucleus or membrane. They appear to arise out of the primary matrix. Most of these bodies, which are gelatinous, have great numbers of nuclei—as many as twenty or forty—within them, which increase by division.

Of the last form—the "*pouched-cartilage*" tumour—the author has himself only seen four cases, all of which arose in the neighbourhood of bone or cartilage, and varied in size up to that of an apple. This variety consists either of the purely pouched-cartilage masses, or is combined with the granular cartilage-mass, is lobulated and capsulated, and may be united to the skin and other parts. The entire tumour consists of many very small lobules separated by areolar partitions, giving on section a bluish-white trabecular appearance; and between the partitions is a quantity of yellowish, semi-transparent, soft echinodroma-like substance. Occasionally, slight calcification exists. On minute examination, a fine and coarse network of normal-looking, and in places undeveloped, areolar-tissue fibres and spindle cells form the matrix, the spaces between the fibres being filled with the specific tumour-structure. This material is occasionally marrow-like and whitish, but generally yellow, like honey, or brownish, and in parts red, with effusion of blood. It is from the first almost of cartilaginous hardness, or gelatinous, with parts softened, and having blood extravasated within. It adheres firmly to the tissue, and is squeezed out

entire. After slight putrefaction, it may be squeezed out like thick opaque mucus, in which clear crystalline globules exist. After these contents have been removed, the remaining scaffolding of the tumour is seen to be very finely or coarsely spongy, and by the aid of the microscope, the areolar-tissue network is seen to be occupied by mother cells. Of these cells, the smallest form is somewhat like ordinary round cartilage cells; the next is larger, and rounded or angular, and somewhat caudate, having a thick and at times concentric membrane, thickened by laminae.

The contents are finely granular and cloudy, coagulating on the addition of acetic acid, and the contained nucleus is obvious. Such structures pass into mother cells, whilst numerous nuclei, as high as one hundred in number in some cases, form in the ever-increasing mother-capsule. The mother cells consequently assume most multifarious forms, with rounded caudate projections like placenta cells, with the formation of buds or diverticula. Where the large capsules have burst, one finds a large number of small nucleated cells lying free in the water, which are indeed very like lymph corpuscles. Hitherto, the elements of the tumour strongly resemble the granule cartilage, but more ultimate forms deviate very much. Isolated nucleated cells, which lie imbedded inside the mother cell by the transformation of their contents and the assumption of a firm gelatinous, vitreous material, form very transparent globules, in which the primary nucleus is occasionally, but not always, seen adherent to the wall. These vitreous bodies then assume most wonderful and varied forms, having pouches branching out in every direction, the glass-like contents always becoming finely-granular and opaque, contracting on the application of acetic acid, and coagulating on that of an alkali, and becoming coarsely granular. These gelatinous masses appear to be, in fact, a peculiar degenerating cartilage-material. The various forms assumed by them are tear-like, carrot-like, biscuit-like, club-, bottle-like, also cactus-like, and linear. It is difficult, however, to make out whether these varied forms result from a melting down, as it were, or a budding outgrowth. Sometimes a brood of young nuclei or complete cells, and even another vitreous body, is included, and in some cases under the structureless membrane lie fine fibrous lines in the larger pouches, and where blood had been seen by the naked eye, the mother cells are seen to contain blood-corpuscles lying between the vitreous body and the smallest cells, but never in the vitreous bodies.

Degeneration of this form of tumour appears to take place in various ways. The vitreous pouches may shrink to a yellowish-brown wrinkled structure, or there may remain simply a branched anastomosing linear or slightly-bent fine fibrous tissue; or fatty and calcareous matter may form in the vitreous pouches, the tissue becoming crumbly, and the calcification spreading over the entire mother cell. Softening and extravasation sometimes produces a bluish-red soft mass, and at times yellow and black pigment-granules are found, the result of old degeneration. Of this kind of tumour the prognosis is not good, and local malignancy and a return after extirpation may be expected.

In an appendix to the author's paper, it is stated that Billroth had given the name of *Cylindaria* to this species of tumour.

As to the exact character of the glass-like, club-shaped vegetations, Meckel himself looks upon them as structures analogous to cartilage; Busch takes them for vessels, whilst Billroth considers them to be structureless areolar tissue.

Heart, Fibrous and Fatty Formation in.—Albers, of Bonn,* relates a case of this. The patient, aged seventy-seven, died of disease of the sternum and thoracic vertebrae. At one part of the left ventricle, the pericardium was adherent to the surface of the heart, which at this part was knotted, showing

a tumour of a yellow colour projecting over the surface, and occupying the thickness of the wall at the apex of the heart. It was of the size of a hen's egg. A very similar tumour existed also in the bulbus aortæ.

The larger tumour at the apex of the heart was quite separate from the neighbouring structures, no transition existing, but still there was no sac between the growth and the muscular tissue of the heart. Section of the growth showed glistening, wavy-striped tissue, enclosing spaces not altogether unlike the tissue of a fibrous growth. On microscopical examination, rounded capillary-fibres were seen, cleared by acetic acid, running in a tufted direction, and returning in an arched form, having about them here and there cells like nuclei. In the other parts, great numbers of fat cells were seen. Bloodvessels were also visible, passing into the tumour in every direction. No fatty or unhealthy muscular fibre of the heart surrounding was seen.

The second tumour—that in the bulbus aortæ—showed as to its outer wall more fat cells and less fibre than the other one. This outer wall formed a kind of shell around a softening mass of fat, cholesterine and granular material. Some parts, which were exceedingly hard, contained calcareous matter.

NERVOUS SYSTEM.

Collonema of the Brain.—E. Wagner* describes an instance of this formation, which was of about the size of a walnut, and situated in the neighbourhood of the corpora quadrigemina. It had a delicate, thin investment, and it was of a gelatinous consistency. On section it had a yellowish, shiny appearance. When examined microscopically, it showed a soft amorphous, finely-granulated appearance, mixing with water very slowly, and on the addition of acetic acid became thready and lumpy, whilst it became quite fluid on the addition of potash solution. It contained also large numbers of areolar tissue-like corpuscles, of which many possessed projections, whereby they anastomosed together, and also many colloid globules.

On the Texture of Neuroma.—Professor Schuh† adverts to the general view that only medullary sarcoma and neuroma (the latter showing the nature and structure of gelatinous sarcoma, as they have been termed) are developed in nerve as pseudo-plasmata, and relates a case of so-called neuroma of the ulnar nerve which proved to have all the characteristics of what he calls fasciculated cancer (*Bundel-Krebs*). He depicts the characteristic differences between gelatinous sarcoma and the fasciculated cancer, which in many points are undistinguishable. The case which he describes was that of a woman, aged forty-three, who had received a blow on the finger by the fall of a piece of wood nine years before: the effects of the blow passed off; but after seven years, she experienced attacks of pain in the two smallest fingers of the hand, lasting only a short time. In another year's time, intense pain in all the hand and forearm came on. This passed away; but in a few more months, along with pain, a small tumour on the inner side of the right upper arm, lying on the coracobrachialis muscle, appeared. This grew very rapidly to the size of a large apple, and at the extreme ends of it a string-like body could be perceived connected with it, which was taken for a nerve. Fluctuation was doubtful, and very gentle pressure gave great pain, extending towards the hand, and specially the two little fingers. No pain existed without pressure in the tumour, though often in the hand. The two smaller fingers were kept extended, having a very high temperature and deficiency in sensation. The tumour was removed, and the wound healed well; the sensation and state of the temperature becoming normal in a short time. It proved to be soft, easily lacerable, full of blood,

* Virchow's Archiv, Band viii. p. 4.

† Zeitschrift der k. k. Gesellsch. der Aerzte zu Wien, p. 10. Dec. 1856.

and of a greyish-red colour. When torn, the surface presented a fasciculated appearance, as far as could be judged in a structure so softened. The microscope showed round and oval nuclei, with glittering nucleoli and cells of various sizes and shapes, besides many cells drawn out into fibres at both ends, having an obviously fasciculated arrangement. This constitution Schuh distinguishes from that of gelatinous sarcoma, in which, besides a fibrous or areolar structure, nuclei and cells exist, but do not observe any fasciculated direction.

SECRETING GLANDS.

Liver, Ulcerating Echinococcos Growth of.—*Entozoa in the Portal Veins, &c.*—H. Luschka* details a case, with minute microscopical observations. The subject was a man, aged twenty-four. The left lobe of his liver formed a cyst the size of a man's head, containing yellowish-green flocculent and purulent fluid. The inner surface, which was of a dirty green fatty nature, was roughened by large and small projections, and presented numbers of rounded openings. Its walls were of various thickness, and consisted of the thickened peritoneal covering, and a fibro-cartilaginous-looking, light-yellow, and firm material towards the cavity, having in it a vast multitude of small apertures, looking like the openings of so many canals. At the under surface of the liver, several large prominences existed, and deeply-extending knotted cords, as it were, in the parts where the lymphatic vessels exist, having the same appearance as the multilocular substance of walls of the cyst. The gelatinous material for the most part showed under the microscope slightly-plaited lamellæ of various thickness, and quite transparent. Moreover, great numbers of large and small spherical and branching hollow structures, with walls having the appearance of the lamellæ, could be extracted uninjured from the canals. The contents of these hollow structures, which were nothing else than echinococci possessed of projections, varied greatly, the lamellar being remnants of the same. The contents were mostly granular, becoming fatty, and particles of biliary material or hæmatoid crystals. In very few cases the echinococci embryo, with a complete circle of hooklets, was to be seen. Moreover, here and there in the twigs of the portal vein, bodies of the size of a hemp-seed were to be seen, with a thick concentrically-laminated wall, from the inner side of which, in many places, small elevations rose, consisting of pedicles, elongated, and passing into variously-branched projections, of which the smallest were club-shaped. These could be seen to contain a cavity with finely-granular contents and a structureless wall. Some were bifurcated, and some were, as it were, only hung on by a single thread. No trace of hooklets was anywhere to be seen. These bodies doubtless showed the method of multiplication of the echinococci by budding.

GENITO-URINARY SYSTEM.

Carcinoma of the Bladder.—Dr. Lamb* gives ten cases of papillary cancer, scirrhus, medullary cancer, &c., of the bladder, much too long to be here detailed, which were diagnosed by a microscopical examination of the urine. He observes, that not only can the microscope discover organic and inorganic bodies in the urine, but that it is the only competent guide in doubtful cases of diagnosis. He passes in review those new formations of the bladder with which the practical physician is concerned. Excepting the ordinary hypertrophy of the mucous membrane, arising from the inflammation caused by calculus, or an obstructed urethra, &c., he describes the villous hypertrophy as being most

* Virchow's Archiv, p. 206. Sept. 1856.

† Vierteljahrsschrift für der Praktische Heilkunde, Band i. p. 1. 1856.

common, which exists in the form of soft papillæ and folds, like those in the intestine; after which comes the mucous polypus in the form of a pedunculated tumour. The papilloma or papillary tumour forms on the one side a natural transition to the villous hypertrophy of the vesical mucous membrane, as it is on the other side with difficulty separable from the papillary cancer in many cases. By Rokitsansky and Schuh these two are classed together. Virchow and Förster distinguish them the one from the other; and the author agrees in opinion with the two last, considering that they have nothing in common but the outer form. Papilloma exists in the mucous as well as the serous surfaces of organs, and to a certain extent may be seen on the endocardium as tufted or pencil-shaped growths from the aortic valve-flaps. A malignant aspect, according to the author, may exist as regards these tumours, without their being really considered malignant, and this is to be found rather in the want of assimilation of the textural type to the original tissue, and the proportionate production of cells deficient in persistent or higher textural capacity, which may be the case with papilloma as well as papillary cancer. The author suggests that the physician would regard rather the uræmia and other hæmaturia, which are the most malignant symptoms of all the new formations. In medullary cancer we have an abundant reproduction and dissemination, and also the projection through neighbouring organs. The author then alludes to tuberculous formations and serous cysts, which he had never seen himself; as also colloid cysts, with yellow honey-like contents. He speaks of five distinct forms of prostatic hypertrophy.

MISCELLANEOUS SUBJECTS.

Corpora Amylacea, and also peculiar Blue-coloured Bodies in the Lym. By M. FRIEDRICH, of Würzburg.*—These bodies were chiefly oval or round, but in places angular in form, and in many cases showed a central nucleus, having the concentric layer disposed around it. Occasionally, the central nucleus was of the form of round granular aggregations, of various sizes, and differed from the surrounding layers, not only by reason of its sharp outline, but also in its chemical nature. Very often the central nucleus was formed of a pigment mass, black, or of a lighter or darker brownish-red, which was in some places amorphous, and in others existed as a crystalline body of large size. The great variety in appearance depends doubtless upon the age of these bodies. Those most clearly concentric in arrangement were obviously the most recent. Those of greater age had lost their concentric appearance, and gradually assumed a yellowish-white or aqueous-looking, wax-like, glittering appearance. This change begins towards the centre, and passes peripherically. The next change which these bodies undergo is the assumption of a punctate granular character, beginning at the middle and gradually encroaching over the entire body. Very often a radiating splitting or fracture of the central part indicates great age, which may be so great that the whole body falls to pieces. Nevertheless, new laminated formations round the old and decrepid bodies may take place. The size of the bodies varied from 0.06 to 0.08 or 0.01 millimetre as a rule, but here and there exceptional oval ones were seen, varying in diameter from 0.11 to 0.12 millimetre. The author then enumerates the various re-actions produced in these bodies by the addition of iodine, iodide of potassium, chloride of zinc, sulphuric acid, &c. Acetic acid made them clearer and more transparent, and more obviously concentric. Ether and alcohol made them swell up, and brought out the concentric rings remarkably, favouring also the tendency to splitting before spoken of. Alkalies did not materially alter these bodies, but concentrated sulphuric acid dissolved them. In one case, the attempt to convert the starch granules into sugar artificially was unsuccessful.

* Virchow's Archiv für Path. Anat. und Phys., p. 613 June, 1856.

The presence of corpora amylacea in the lungs was first noticed by the author in July, 1855, in a man, aged sixty-two, who died of pericarditis, with secondary hæmorrhage into the lung tissue, and pneumonia. In the mass of pneumonic infiltration, numbers of these bodies were found, six or eight being seen at a time under the microscope. They were strictly confined to this part of the lung. In another case—that of a man, aged seventy-five, who died of diseased heart, hydrothorax, and compression of the lungs—these bodies were found existing throughout the entire lung: so numerous were they, that as many as ten were found in the field of the microscope at the same time. They were also found in the mucous secretion of the bronchial tubes, so that they would no doubt, if looked for, have been found in the sputum during life. The bronchial glands were natural. The author imagines that these bodies may be connected with the elements of the blood, and possibly with the extravasation of blood.

Friedreich has also more recently* communicated another instance in which these bodies were found in the lungs of a woman, aged forty-three, subject to epilepsy, who had diseased brain and heart. The lungs were in a state of induration, and in many places were of a brownish-red colour, showing what is generally called pulmonary apoplexy. The upper parts only of the lungs contained air; and some of the branches of the pulmonary artery, in the indurated and apoplectic parts, were plugged up by adhering coagula. The epithelium of the air cells was almost all occupied by yellow or yellowish-brown diffused pigment-granules; and the bloodvessels between the air cells, &c., were beset by brown granular pigment. In the infarcted parts the corpora amylacea were found. They differed in form and size from those mentioned in the former case. Some were oval, measuring 0.15 millimetre, and had large nuclei. In one of these formations the central body was granulated, long, and twisted in a serpentine form; in another it was large and clumpy, with a sharp outline, and becoming yellow on the addition of iodine, whilst the surrounding laminae became blue. In some cases the central bodies were many in number, but yielded the same reaction as the peripheric parts. In one instance, the central body was perforated by a smooth opening. But besides the above variety, another, totally different chemically from the corpora amylacea, was found, but exhibiting a like form to them. They were mainly round, and of various sizes, with central depressions, from which passed out radii towards the circumference—some of these being distinct clefts, causing the bodies at times to split into segments. Some had the appearance of a number of pins joined, and squeezed tightly together at their centres. The peculiarity of most of them was that, after being a little time under the microscope, they assumed by degrees an evident blue colour, which became gradually intensified, so that in a quarter or half an hour they were of a bright and deep blue colour. After much examination, it was obvious that the blue colour was obtained by the oxidation of the bodies, owing to contact with atmospheric air. By Professor Scherer, these bodies are supposed to be a form of phosphate of iron. On the addition of sulphide of ammonium they became black, and yellowish-brown on the addition of soda and potash. No change was produced by sulphocyanide of potassium or acetic acid, but they were dissolved by sulphuric acid and nitric acid, a pale outline being left. Natural iron-blue (vivianite) gave the same results when tested, and to a certain extent showed similar forms as these bodies, but was wanting in the pale organic framework left after dissolution. These same bodies were seen to beset the minute bloodvessels of the interstitial tissue of the lungs, in heaps of fifteen or twenty; and in all cases, the longer the lungs were kept, the rarer the bodies became; whilst, on the other hand, the triple ammoniaco-magnesian-phosphate crystals increased in number. The author supposes that the bodies described by Black as being found in some cases of tubercular sputum,† were of the same nature.

* Virchow: Arch. f. Path. Anat. u. Phys., p. 201. Sept. 1856. † Ed. Jour., part ii. p. 322.

HALF-YEARLY REPORT ON PATHOLOGY AND MEDICINE.

By EDWARD H. SIEVEKING, M.D.

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and Assistant-Physician to St. Mary's Hospital, &c.

I. On Cerebral Abscesses. By Professor LEBERT. (Virchow's Archiv für Pathologische Anatomie und Physiologie. Band x. Hefte 1, 2, 3.)

PROFESSOR LEBERT observes on the importance of a minute investigation of each form of disease that affects the brain, and draws attention to the fact, that abscesses of that organ have not as yet met with that consideration which they merit. He has observed five cases himself, and has collected a large number reported by various authors, the analysis of which yields the following results:

Of the 80 instances collected, 22, or above a quarter, presented scattered abscesses in various parts of the brain; the remaining 58 were cases in which solitary abscesses were found in some part of the encephalon. These were distributed as follows:

Left hemisphere . . . 23 cases.	Cerebellum 12 cases.
Right hemisphere . . . 18 "	Pituitary body . . . 2 "
Corpora striata . . . 2 "	Medulla oblongata . . . 1 "

In the cases of multiple abscesses, there were never more than five. In 11 there were two; in 6, three; in 3, five; in 2 cases the number was not specified. The abscesses generally occupy the white substance, only affecting the grey matter by extension from the former. The author points out the peculiarity of the fact that suppuration prevails in the less vascular white matter of the brain, while the morbid condition most prevalent in the grey matter is softening. The form of cerebral abscesses is generally oval; they vary in size from that of a pea to that of a hen's egg and more. An entire hemisphere is at times found converted into a pouch filled with pus. When a communication is established with one of the cerebral ventricles, the form becomes very irregular. The contents are generally a greenish pus of considerable density, rarely containing blood. In 18 cases the pus is reported as having been very fetid. The microscope shows the pus to be very granular, and not containing many well-formed pus-corpuscles; the older the abscess, the more they seemed to be retrograding. The abscess is at first surrounded by cerebral tissue infiltrated with pus, beyond which the cerebral tissue is softened, and, if the abscess is very recent, presents a red zone of vascular injection. Plastic exudation soon forms a membranous sheath, which may attain a thickness of from one to four millimètres. The cyst itself is supplied with bloodvessels, and thus helps to promote suppuration. It does not appear that these encysted abscesses can be cured; at least, no evidence can as yet be offered to prove it.

With regard to the duration of the affection, if appears, from an analysis of 18 cases, in which the period was noted, to have been as follows:

From 10 to 20 days . . . 1	From 40 to 50 days . . . 3
" 20 to 30 " . . . 2	" 50 to 60 " . . . 5
" 30 to 40 " . . . 4	" 60 to 90 " . . . 2
From 90 to 120 days . . . 1	

In many cases there was no indication as to the duration of the disease; in others, only the acute symptoms which closed the scene were considered, though a chronic stage had evidently preceded their outbreak for a longer or shorter period.

Professor Lebert next considers the question of the rupture of an abscess, and its communication with other parts. Perforation or abnormal communications were found to have occurred in 12 cases. The lateral ventricles are the

parts into which perforations most frequently occur; the presence of pus causes inflammatory thickening of the ependyma, and scattered spots of inflammatory softening in the adjoining cerebral tissue. In 5 cases the perforation was effected through the ear or the orbit, and the abscess was discharged externally. One of these cases is related by Itard, in which the internal ear is said to have remained healthy, though the cerebral discharge made its way outwards through the petrous portion of the temporal bone.

Professor Lebert analyses the histories also, with a view to determining whether any uniform lesion of other organs accompanies abscess of the brain. This does not seem to be the case; the general conclusion appears to be, that what debilitates the individual causes a predisposition to this affection. In 6 cases, pyæmia supervened distinctly; 3 cases in which it is suspected to have occurred, are not accompanied by sufficiently detailed necropsies to justify a positive statement. A complication with tubercular disease was only noted three times, in one case affecting the cervical, bronchial, and mesenteric glands, in another the mesenteric glands only, and in a third the bronchial glands were tubercular, while the lungs were full of miliary tubercle.

The most frequent cause of cerebral abscesses is internal otitis; this in its turn often resulting from scarlet fever, angina, or scrofula. Cerebral abscesses also occur as sequelæ of inflammations of distant parts—as of pneumonia, pericarditis, enteritis, or of measles. They also occur in the form of metastatic abscesses, associated with chronic diseases which appeared to exercise no definite influence in their production, and as a result of traumatic injury.

The latent character of the disease is important in regard to diagnosis. Sudden headache is the symptom which most frequently first excites attention; it is generally accompanied by febrile symptoms; vomiting, difficult articulation, and convulsive attacks may supervene; the patients become heavy and morose, and show delirium, contraction of pupils, photophobia; numbness and formication may supervene, and apoplectic symptoms may occur; but all these symptoms vary much in different cases. The intellect suffers comparatively little; sensibility suffers more frequently: the headache is more or less intense, generally diffuse at first, and subsequently unilateral. Coma occurs frequently, but often only temporarily. Paralytic states were observed in about one-half of the cases; they were generally local, but showed themselves also in the form of general muscular debility. Diminished articulating power was observed in 10 cases. In regard to the special senses, only the affection of the ears presents any points of importance. No special symptoms are observed in reference to the vascular or respiratory system. Disturbance of the digestive organs showed itself in the form of vomiting in 20 cases; involuntary defecation occurred towards the fatal termination of 11 cases. The duration of the disease appears to fluctuate from two or three weeks to two months; there is necessarily a difficulty in determining the point, as the commencement can only be approximately fixed. It occurs at all ages; but the greatest frequency prevails between the sixteenth and thirtieth years.

On the subject of treatment nothing is suggested, as no case of cure is known. The author especially protests against adoption of any surgical proceeding for the purpose of removing the contents of the abscess.

II. On the Hematoma of the Dura Mater. By RUDOLPH VIRCHOW. (Verhandl. der Physikalisch-Medicinisch. Gesellsch. zu Würzburg. Band vii. Heft 1.)

Virchow is of opinion* that the sanguineous cysts found at the inner surface of the dura mater, and interpreted either as effusions on the free surface of the

* The view propounded by Prof. Virchow is not entirely new. It was already suggested by Bayle; cf. *Traité des Maladies du Cerveau et de ses Membranes*, p. 256. 1826.

dura mater, or as effusions between its layers, or between it and the arachnoid, should be attributed to chronic inflammation of the dura mater. The author recommends the adoption of the term pachymeningitis to designate inflammation of this membrane. In the variety affecting the free surface, which he does not regard as being invested by a serous covering, we find in recent cases very fine layers of fibrin spread to a greater or less extent over the dura mater; and these are generally accompanied by small extravasations, which are converted into pigment. By the repetition of the inflammatory process, numerous layers of fibrin become deposited one upon the other, and much more numerous and larger vessels form in these layers than are to be met with in the dura mater itself. To these new-formed vessels, Virchow attributes the hæmorrhage which gives rise to the formation of the hæmatoma, the cyst being formed by the extravasation taking place between the layers of the false membrane. Virchow observes, that an examination proves the cyst to consist of a new formation, and that neither the dura mater itself nor the arachnoid forms one of the parietes; moreover, the exudation contained in the cyst is always more recent than the surrounding membrane; the blood being partly coagulated and partly fluid, with well-formed corpuscles. The disease itself is very chronic, but terminating after continued cephalic suffering, suddenly, with symptoms of apoplexy.

The hæmatoma may attain a considerable size; it may be from four to five inches long, by two and a half inches broad, and one-half to three-quarters of an inch thick. It is of a flattened, circular form, with a central elevation. The long diameter is parallel to the falxiform process; it generally occurs on one side only, or if bilateral, one is more developed than the other. The affection appears to occur only in the adult, and generally after the age of fifty. Inflammation of the dura mater occurs very frequently in idiots, and often gives rise to hæmatoma. A curious case is mentioned by Virchow, in which a large hæmatoma of the right side was accompanied by hemiplegia of the same side, in a man aged thirty-nine, who died apoplectic.

III. *On the Sounds Perceptible about the Head and at the Upper Portion of the Spinal Column in Children.* By Dr. HENNIG, Director of the 'Poliklinique' for Children in Leipzig. (Virchow's Archiv für Physiologische Heilkunde, Jahrg. 1856. Heft 3.)

At the suggestion of Dr. Hennig, Dr. Wirthgen,* in 1855, wrote his inaugural dissertation on the subject of the present paper, which contains the results obtained by both observers. They are shortly as follows:

1. If the ear be applied directly, or with the intervention of a stethoscope, to the anterior fontanelle of a child, taking care not to exercise a painful pressure, sounds are heard. They may sometimes be heard at the posterior fontanelle, along a line drawn from the anterior fontanelle to the temporal fossa, and, though less frequently, along the sagittal suture. Occasionally sounds are audible over the entire cranium.

2. The sounds are perceived from the twentieth week of life to the sixth year, at all times of the day, in all positions, and whether the child be asleep or awake.

3. There are two classes of sounds: those that are heard during the first period, up to the third or fourth year, are always of a blowing character, and always intermittent; those heard later are more limited, and have a double stroke, analogous to the sounds of the heart. In addition to these sounds, the respiratory murmur may be recognised in auscultating the head; it is less frequent than the blowing sound above mentioned, but is more enduring, the ratio of frequency being in health, in the infant, as 4 : 1.^a

* G. Wirthgen: De strepitu qui in Capite auscultando auditur. Lips. 1855.

4. Dr. Hennig attributed the intermittent blowing sound heard at the large fontanelle up to the time of its closure, to the pressure exercised by the arteries upon the cerebral sinuses.

- 5. The blowing is the louder the more advanced the process of ossification while the fontanelle continues open; the more the muscular system of the body is developed, the stronger the cardiac impulse, the more elastic the vascular parietes, and the more the blood resembles that of chlorotic subjects.

There is an apparent contradiction in the latter part of the last sentence, which is not cleared up by what follows; but we prefer giving the author's words to making any substitution, which would fail to convey what he actually says. He continues:—The blowing murmur diminishes if the child is reduced in strength, if the cranial bones are soft and thin, while the fontanelle continues open; it diminishes in healthy children when the orifice is actually closing; the same is the case when the child recovers from hydræmia, and at the commencement of conditions which cause an abnormal elevation of the cranium. The sound entirely disappears when the cranium is perfectly closed; it does so in very feeble atrophic children; in acute hyperæmia and extravasation within the cranium, or if the longitudinal sinus is choked up with coagula.

Dr. Hennig observes, with regard to the application of auscultation to the diagnosis of cerebral disease, that although it does not serve to distinguish the individual morbid condition, it assists in defining the general character of the disease. If the child is vigorous, the cerebral murmur will disappear at the proper period of development; it will be absent in hyperæmia of the brain and the meninges, in sanguineous extravasation, in acute hydrocephalus, in extensive encephalitis, and in cerebral and meningeal tuberculosis, especially if accompanied by meningitis or serous effusion, as is usually the case.

IV. *Narrowing of the Foramen Magnum Occipitis and of the Spinal Cord, by the formation of Bone.* By Dr. ARTHUR WILLIGK. (Prager Vierteljahrsschrift, 1856. Jahrg. xiii. Band 3.)•

Dr. Willigk remarks on the extreme rarity of osteophytic growth in the vicinity of the foramen magnum, which he attributes to the fact, that diseases of this part generally run so rapid a course as to prevent the formation of bone in a deposit. Among several thousand autopsies, he has not seen a single case of the kind. In cases of extreme osteophytic growth affecting the whole cranium, the margins of the foramen have been found to remain perfectly smooth, showing an apparent immunity of the part. The cranium which Professor Willigk describes, was found by him in the Museum of Olmütz. A delicate osteophytic growth existed on the inner surface of the frontal, sphenoid, and right temporal bones. The anterior part of the foramen magnum was much reduced. A space included between the anterior part of the condyles and the front margin of the foramen was filled with new bone; this extended along the left margin of the foramen backwards to the extent of three centimètres (about an inch), and sent down a styloid process slantingly into the spinal canal. The surface was compact, here and there exhibiting large pores. The growth was of that kind, that movement must have been impossible.

V. *The Production of Reflex Action a Means of Diagnosis.* By Dr. A. STICH. (Annalen des Charitékrankenhauses. Jahrg. vii. Heft 1.)

Assuming the correctness of the doctrine, that irritation of a nerve of sensation produces motion only if the spinal cord co-operates, and that the excitability of the central organ is increased if the communication between the nerve

of sensation and the brain is interrupted, Dr. Stich applies the doctrine in cases of paralysis, to determine whether the lesion be one of peripheral or centric origin; the presence or absence of reflex action on the application of chemical or mechanical stimuli being the test. Thus, in the case of a woman who was delivered with the forceps, paralysis, both of motion and sensation, affected her left leg, and the affection was attributed to the pressure exerted upon the nerves during her confinement. But when, according to Dr. Stich's proposition, the foot was placed in hot water, the patient felt no heat, but some spasm was visible in the limb, showing that the impediment to conduction was not peripheral, but centric, as the communication between the nerve of sensation and the cord was evidently uninterrupted. That the latter view was correct was shown by the course the disease took, as it ended in complete anæsthesia of the entire left side, and deranged mobility of both sides.

Dr. Stich applies the method to determining, in anæsthesia of mixed nerves, whether the sensory root is diseased, or the centric origin of the nerve. If in such cases, on applying irritation, reflex action results, we may safely conclude that the sensory root is not the part diseased.

The author also proposed to employ the method when, in the case of disease of the spinal cord, we desire to determine the extent of the lesion which prevents conduction; inasmuch as hitherto we have been able only to define its boundary in the direction of the cerebrum we may now have it in our power to determine the lower boundary towards the cauda equina. Dr. Stich is of opinion, that by this mode of procedure we may be enabled to determine the existence of several detached diseased spots in the cord, though he has not as yet satisfied himself of this experimentally.

The interruption of the conduction from the spinal cord to the brain is a circumstance which deserves our consideration in reference to most forms of spasmodic disease; many of these run their course without being productive of pain; an impression is conducted by a sensory nerve to the cord, but is not propagated to the cerebrum; hence the absence of pain. The author argues that these affections may be regarded as affording support to his views. He appears here to enter upon very debatable ground.

VI. *Report upon Two Hundred and Eighty Cadaveric Inspections.* By Professor Buhl, M.D. in Munich. (Hentle und Pfeuffer's Zeitschr., Neue Folge. Band viii. Heft 1.)

The post-mortems upon which Dr. Buhl reports were, with the exception of three, performed during the period included between the 12th November, 1854, and 12th August, 1855; 209 were bodies of patients who had died in the General Hospital at Munich, 19 belonged to the Polyclinique, and 49 were private patients of Munich physicians.

We extract from this very interesting and able Report some of the author's remarks on the subject of pneumonia. He describes three forms of this disease: croupous pneumonia, tubercular diphtheritic pneumonia, and a third, to which he applies the name of desquamative pneumonia. Croupous pneumonia is universally described as presenting the two stages of red and of grey hepatization; in the former stage, the lobes, or part of them, are uniformly enlarged, increased in size and weight, are deprived of all air, more friable, and, when cut, granular and dark red. The colour is due to hemorrhage into the pulmonary vesicles and bronchioles. This stage is preceded by disease of the coats of the vessels and vesicles which induces their rupture, as well as an exudation of fibrin, and which the author defines as an acute derangement of their nutrition. During the second stage the colour is converted into a red-dish-grey, or grey; the friability increases; the microscope exhibits a large number of pus corpuscles, the epithelium is converted into a molecular detritus, and suppurative destruction or chronic induration may result.

The tubercular diphtheritic variety differs from the former in not affecting a portion of pulmonary parenchyma continuously, but in lobules only; it is analogous to the second stage of croupous pneumonia, but the parts affected are absolutely deprived of blood, and exhibit increasing dryness, while in grey hepatization the parts are only partly deprived of blood, and manifest increasing moisture or succulence. Molecular infiltration, molecular disintegration, with necrotic destruction of the pulmonary vesicles and bronchioles, characterize the former; while in the latter we meet coagula containing pus corpuscles, liquid pus, and even abnormal contents in the vesicles. The author regards the morbid process in the diphtheritic variety as based upon an arrest of all nutrition; while the croupous form he attributes to a disturbance of nutrition.

The third form of pneumonia, the author states, occurs only as red hepatization. The affected lobules are less increased in weight and size than they would be in the croupous variety; the cut surface is of a uniform red colour, and presents shades of a livid, brownish, or, less frequently, blackish-red colour; it is smooth, the tissue deprived of air, and of elasticity; it is tough, and but slightly friable. There is an almost entire absence of extravasation and fibrinous exudations; the air is expelled from the vesicles by loose granular epithelium, which is surrounded by an albuminous exudation. As the disease advances, the tissue, without recovering its elasticity, becomes turgescient and filled with blood; the epithelium undergoes molecular disintegration, and discharges its nuclei, or is converted into fat granules. The residue of the epithelium and the fluid in which it lay is gradually absorbed, and the vesicles either collapse or again expand to the pressure of the air. The lining epithelium is regenerated, probably after repeated desquamation, but the tissue does not recover its elasticity for a long time. During the later periods of this variety, or during protracted convalescence (and sometimes earlier, if the pneumonia was very severe), the epithelium presents fatty degeneration, which may be even recognised by the naked eye.

Dr. Buhl denies that these varieties of pneumonia are stages of the same disease, but admits that they may co-exist in the same individual. He is of opinion that the desquamative form is frequent, and from its greater tendency to recovery, less liable to present itself to us in the dead body.

VII. *A new Case of Sarcina in the Lungs.* By RUDOLPH VIRCHOW. (Archiv. für. Pathol. Anat. und Physiol., Band x. Heft 3.)*

In the lungs of a shoemaker, aged thirty-three, who died of phthisis in 1854, Professor Virchow found extensive cavities in the right lung, not confined by a false membrane, but surrounded by the lung tissues in a state of pulpy degeneration. This tissue, when examined by the microscope, was found to consist almost entirely of sarcina, with a small admixture of portions of the parenchyma and a small quantity of extravasated blood. If a portion of the lung tissue, which retained its consistency, was spread out under the microscope without being washed, it was found thickly beset with sarcina. The reaction was alkaline.

VIII. *On Edema Glottidis, resulting from Typhus Fever.* By THOMAS ADDIS EMMET, M.D. (American Journal of the Medical Sciences, July, 1856.)

Dr. Emmet draws attention to two forms in which edema glottidis occurs as a secondary affection of typhus, either as a result of a reactive ulceration of the mucous membrane of the air passages, in consequence of typhous deposit,

* A similar case was published by Prof. Virchow, in the Archiv, Band ix. p. 574. He terms it, pleonastically, pneumonomycosis sarcinica, from *μύκως*, a fungus.

or as a result of the debilitated condition of the patient alone remaining after the subsidence of the primary disease; in the former variety the infiltration takes place slowly; in the latter, with great rapidity, so as to cause almost instantaneous death. Dr. Emmet supports his views by cases. He is of opinion that œdema glottidis is more frequently the cause of the fatal issue of diseases than is commonly supposed. With regard to the performance of tracheotomy or laryngotomy, it is not advisable at all in the cases of laryngo-typhus, since in every fatal case of this affection, bronchitis was found to co-exist; a more favourable issue may be expected to follow where it is performed for simple œdema. The relative frequency of œdema of the glottis as a sequel of typhus, may be gathered from the fact, that out of 1931 cases of typhus, 23 presented the laryngo-typhus, 7 the simple, form of œdema glottidis.

IX. *Two Cases of Thoracentesis, performed for Acute and very considerable Pleuritic Effusion, and followed by Recovery.* (Union Médicale, tome x. Nos. 117, 148.)

These cases occurred at the Hôpital St. Antoine, under the care of M. Aran. The patients were men respectively of the ages of twenty-six and thirty-nine years. In the first, the pleurisy affected the left side, and the effusion was so considerable as to force the heart above an inch (three centim.) beyond the right margin of the sternum; in the second, the right side was affected, and the heart was pushed over to the left, so that the heart-dulness only commenced at the left edge of the sternum. The dislocation of the heart forms one of the chief sources of the danger accompanying pleuritic effusions, and may therefore be regarded as an argument in favour of paracentesis. Paracentesis was accomplished in the former case a few days after the patient's admission to the hospital, when he had been about four weeks ill. One thousand two hundred grammes (above twenty-six ounces) were evacuated; the immediate relief was great, and an entire recovery followed, so that he was discharged cured three weeks after. In the second case, the operation was performed four weeks after the commencement of the illness, and a week after the patient's admission. The amount of fluid evacuated was 2500 grammes (about fifty-five ounces). A fortnight after, the patient is reported to be doing perfectly well, being retained in the hospital simply as a matter of precaution.

In neither of the cases was there much fever on the day on which the puncture was made; the pulse was eighty-four in the first, sixty in the second patient; the former presented twenty-four, the latter twenty, respirations in the minute. They had some appetite, and probably neither patient considered himself dangerously ill; still, the extent of the effusion left no doubt that their malady was a very serious one. The recovery was the most rapid and complete, as regards the expansion of the compressed lung, in the second case—still, in both the lung that had been affected, was restored nearly to the normal condition. The first at his discharge is reported to have retained only a slight dulness, with a somewhat feeble respiratory murmur on the left side; while the second, eight days after the operation, presented nothing but a slight diminution of the respiratory murmur at a circumscribed spot at the lower and outer part of the affected side.

X. *On the Diagnostic Value of the Symptoms commonly regarded as Indicative of Pulmonary Cavities.* By Dr. N. FRIEDREICH. (Verhandlungen der Physikalisch. Medicinischer Gesellschaft in Würzburg. Siebenter Band, Heft 1.)

The cracked-pot sound, the tympanitic percussion-sound, the amphoric and metallic respiratory sounds, are in this paper examined in relation to the

diagnosis of pulmonary cavities. We recently drew attention to Professor Bennett's* observations on the occurrence of the cracked-pot sound in various conditions unconnected with cavities. Dr. Cockle has also† shown that it may occur in cases of simple bronchitis. Dr. Friedreich gives three cases of pleurisy in which this sound was met with. In the first (a man, aged twenty-two) it occurred in the left infra-clavicular region, at the time when the effusion on the same side was receding, and it lasted until its complete absorption. In the second (a man, aged twenty-two), the sound occurred from the commencement of the affection, and whether the nose and mouth were open or closed, in the left infra-clavicular space, as far as the third rib, to which the pleuritic effusion reached. It disappeared before any change in the exudation was perceived. In the third case (a man, aged twenty-three), the *bruit de pot-filé* was produced, the mouth and nose being open, at the upper left side, down to the third rib, at which point the effusion commenced. The patient was still under observation when the paper was written. With regard to the occurrence of the sound in healthy subjects, Dr. Friedreich has failed to discover it in the adult, but on examining forty-six children under fourteen years of age, he met with it twenty-six times—fourteen times audible on both sides anteriorly, but only in five equally loud—in the other cases, generally louder on the left than the right side, and only twice louder on the right than the left. In explaining the production of the cracked-pot sound, Dr. Friedreich opposes the theory that it is due to air being forcibly expelled through the glottis, because on applying the stethoscope to the larynx, while another person produces the sound, no indication of its formation at the glottis is obtained. In bronchitis and early infancy he believes the production of the sound to be due to the compression of the smaller bronchi during the act of percussion. He adopts Skoda's theory of its production in phthisis, while in pleurisy he attributes it to compression of the pulmonary tissue by the exudation, and the forcible expulsion through the smaller bronchi of the air contained in them, when percussion is employed.

XI. *A Case of Paracentesis of the Pericardium.* By Professor TROUSSEAU.
(L'Union Médicale, Oct. 7, 1856.)

A young man, aged twenty-seven, was admitted in the Hôtel Dieu on the 2nd of June, 1856, under the care of Prof. Trousseau, having been taken ill a few days previously with violent fever, and all the symptoms of capillary bronchitis. A few days later, a blowing murmur was heard at the apex of the heart, and at the end of a week there was a double murmur at this point, while a few days later still, the second sound of the heart was redoubled, so as to produce a triple sound, the *bruit de rappel or de galop* (— — —). The catarrhal symptoms diminished while the cardiac dullness extended, so as soon to leave no doubt of the existence of pericardiac effusion. The cardiac bruits became less distinct, and at last disappeared; the anxiety of the patient increased in the exact ratio of the increased effusion. The symptoms at last became so urgent, that, after a consultation, the operation of paracentesis of the pericardium was decided upon. The dullness extended upwards to the third rib, downwards somewhat below the base of the thorax, and laterally from about three-quarters of an inch to the right of the median line of the sternum, to about four inches to the left of the left nipple.

An incision was made with a bistoury in the centre of the circle of dullness, below the nipple, in the nearest intercostal space. The parts were successively divided with great care, until the operator reached the pleura. This membrane was then divided, and on introducing the finger, the distended pericardium was

* British and Foreign Medico-Chirurgical Review, p. 447. Oct. 1856.

† Association Medical Journal, July, 1856.

distinctly felt. This was first pricked with the point of the bistoury, and the opening gradually widened by a grooved probe. A large quantity of serosity, slightly reddened, escaped. About three ounces of this was collected in a porringer, and immediately set, like, "gooseberry jelly." The fluid having ceased to run, the patient was placed on his left side, and about six ounces of a bright yellow liquid, quite distinct from the former, was discharged. It differed in colour, as well as in the more imperfect coagulation. The autopsy subsequently showed that the latter came from the pleural, while the former was derived from the pericardial cavity. The total quantity of fluid discharged amounted to about four hundred grammes, or about twelve ounces. It was supposed that the existence of false adhesions prevented a more complete discharge. The patient was temporarily relieved, but in the evening eclampsia supervened, followed by convulsions, affecting the right side of the body only. On the following morning, the right side of the body was completely paralysed, as well as the tongue; still intelligence seemed to be preserved. The pulse was 160, but the respiration was not more difficult. Death ensued on the fifth day after the operation.

The post-mortem was performed with great care. The left pleura contained a citron-coloured liquid resembling that which had run out at the second stage of the operation. It contained no false membranes or adhesions. The pericardium resembled an enormous ball, of the size of a man's head; it was not adherent to the ribs. A purple spot marked the point where the opening had been effected in the pericardium. It was lined on a level with this spot with false membranes, coloured red. On opening the pericardium, one thousand grammes (about thirty ounces) of pale reddish serum flowed out, like that first obtained on making the puncture. It contained very few fibrinous flocculi. The heart, as well as the interior of the sac, was covered with a thick reticulated false membrane. The heart was somewhat increased in size, and the cavities were rather smaller than normally. The orifices were rather small, but otherwise healthy. Tubercles were found in the lungs, the pulmonary and abdominal glands.

XII. *Clinical Observations in the Franz-Joseph Hospital for Children in Prague.*
By Professor LÖSCHNER. (Vierteljahrsschrift für Praktische Heilkunde. xiii. Jahrgang, 1856.)

We extract from the above lengthy Report the following cases of rupture of the septum ventriculorum, as a result of endocarditis. The perforation took place at the point at which, as we have shown on a former occasion,* there is normally an absence of muscular tissue:

1. Sinnenek Carolina, a girl, aged four, had enjoyed good health till four days before admission to the hospital, when she was suddenly seized with rigors, loss of strength, and thirst. The skin was burning hot; on the following day was covered with diffuse redness, which disappeared after three days. The child did not improve; but as dyspnoea, swelling of the face and feet, supervened, the parents brought her to the hospital. Admitted on the 16th October, 1855, she presented traces of rickets, though generally well developed. The skin generally was oedematous, hot, and slightly desquamating; the tongue furred; some diphtheritic exudation in the fauces. Percussion was dull on the left side, from the third rib to the seventh vertically, and from the edge of the sternum to the axillary line laterally. The impulse of the heart was visible and broad, a distinct whirr being communicated to the hand when applied to the thorax. A prolonged blowing murmur intervened between the first and second sound, so that both sounds ran into one another; there was also extensive friction-sound. At the inferior parts of the lungs there were ægophony and

very feeble respiration. Pulse 132, very small; urine scanty, not albuminous; bowels costive; dyspnoea. On the 18th, the dyspnoea continued very urgent, the oedema had increased, the blowing murmur continued, and the friction-sound ~~was~~ increased; pulse 140. On the 19th, the serous accumulation in the thorax had manifestly increased, as well as the dyspnoea; the urine contained a small quantity of albumen; cyanosis supervened; and in the morning of 21st, death relieved the patient. *Post-mortem*: The thorax was normal, without a trace of rickety distortion. Both pleura contained several pints of serum; the lungs not adherent, excepting the upper lobe of the left lung; otherwise compressed and containing no air, but presenting no structural alterations. The pericardium much distended with serum; the heart enlarged in all its diameters, so as to resemble the heart of an adult; a yellow layer of recent exudation invested the base of the heart. All the cavities were much dilated, and the parietes considerably thickened, the right ventricle presenting a diameter of two and a half to three, the left of nearly six, lines. The curtains of the mitral valve were much thickened, but the auriculo-ventricular orifice was not diminished in size. A few milk spots were seen on the endocardium, and in the vicinity of the mitral valve a few spots of fresh exudation. At the upper part of the septum ventriculorum, where the muscular tissue terminates and the two endocardia join to form the entire septum, underneath the right and posterior valves of the aorta, there was an irregular orifice of the size of a bean, surrounded by an elevated margin: the inner angle of the tricuspid, with an additional exudation of fibrin, had almost converted it into a sac. The semi-lunar aortic valves were slightly roughened; the corpora aurantii much developed; the aortic bulb dilated. The other features of the post-mortem have no special bearing upon the main disease, so we omit them.

Professor Löschner points out that the perforation must have taken place some time before death, and yet did not produce the symptoms one would have anticipated from so serious a lesion; the immediate cause of the fatal issue being the scarlet fever, with its sequelae. The author is of opinion that, previous to the fatal attack of pericarditis, accompanied by recent endocarditis, there must have been several attacks of cardiac inflammation. It certainly is difficult to believe such effects to have been produced, and the child to have remained sufficiently free from symptoms without attracting the attention of even superficial observers. It suggests itself whether the opening in the fibrous inter-ventricular triangle may not have been congenital, and whether the subsequent deposit of lymph upon its edges may not have induced the appearance of perforation.

2. Theresia Lokay, aged four, had never enjoyed sound health. When admitted into the hospital, Jan 1st, 1855, she presented a feeble habit, with a slight cyanotic complexion, a pigeon breast, feeble respiratory murmur, with frequent large and small mucous râles. The impulse of the beat was distinctly visible, and much increased in extent and force; a purring was perceptible to the touch. A blowing murmur was heard with the first sound over the ventricles; the second sound of the pulmonary artery was increased; the radial pulse very small—96. There was great restlessness; the nights sleepless. The cardiac action became more violent; the pulse more and more reduced. On the seventh day after admission, consciousness left her; convulsions supervened; the cyanosis became very intense; and on the ninth day, death ensued. The autopsy showed the cerebral ventricles much distended with clear serum, their parietes and the fornix pulpy. The rickety thorax was completely filled with the lungs; the heart lay almost horizontally. The right lung contained numerous solitary and agglomerated nodules of yellow tubercle; but a few tubercular deposits were found in the left lung. The pericardium was universally adherent to the pleura; the heart also adherent to the pericardium, and much enlarged in the longitudinal and transverse diameters. The foramen ovale was patulous; the left ventricle hypertrophied; the free margin

of the mitral valve thickened, its tendons partially adherent; the fibrous inter-ventricular triangle exhibited a perforation sufficiently large to permit the passage of the tip of the little finger: the perforation was covered in the right ventricle by the inner curtain of the tricuspid, which was attached to the margin of the orifice by exudation matter. The other curtains of the tricuspid were thickened. The liver was somewhat enlarged, and exhibited slight fatty degeneration; the spleen was tumid, and its capsule studded with tubercles which penetrated into the splenic tissue; the mesenteric glands swollen; the kidneys healthy.

Well-defined cases of inflammation of the muscular tissue of the heart belong to the curiosities of medical literature; we therefore add a brief abstract of the following case:

A girl, aged eleven, said to have been indisposed only for twenty days, was admitted on the 3rd March, 1856. She had been seized with loss of consciousness, great debility and apathy. She was well built, but very pale, with glassy eyes, yellow tongue, and a cyanotic appearance of the mucous membranes. Respiration irregular, but no marked derangement perceptible in the lungs by percussion and auscultation. The heart occupied its proper position; impulse feeble; the heart-sounds sharply defined; pulse irregular, varying from 60 to 100. The spleen enlarged. The vegetative functions impaired. The girl was almost unconscious, and very apathetic. During the night she became restless; spoke incoherently; the pulse became intermittent and almost imperceptible; and on the following morning, at eight o'clock, death took place. The main feature presented by the post-mortem was the condition of the heart: this organ was large—exhibited numerous ecchymosed swellings on the surface; towards the apex there was a spot of the size of a pea, filled with yellow exudation, and occupying the parenchyma of the heart; there were several other smaller spots at different parts of the heart, showing manifest myocarditis. The whole left ventricle was hypertrophic; the valves perfectly healthy, as well as the endocardium.

XIII. *Case of Dislocation of the Spleen, occurring suddenly, and running a rapid course.* By Professor HELM. With Remarks by Dr. KLOB. (Wochenbl. der Zeitschr. der k. k. Gesell. d. Aerzte. No. 37. 1853.)

B. G., a needlewoman, aged twenty-one, who had had ague two years previously, was seized on the 7th March with violent pain in the left abdomen: this increased in intensity; and on the following day she was admitted into the hospital at Vienna, where she stated that, over-night, a tumour had formed in her abdomen, which could be felt between the ribs and the left ilium, of the size of a child's head. The splenic region was sonorous. The slightest contact produced intense suffering, and the rapidly-increasing tympanitis soon prevented the possibility of feeling the tumour. There was great dyspnoea, but no apparent pulmonary or cardiac disease; the pulse very small; constant emesis. Death the same evening at seven, P.M. *Post-mortem*: Nothing of consequence was observed in the cranial and thoracic cavities. The distended abdominal cavity contained about ten pounds of a chocolate-coloured acid liquid, mixed with undigested food. The liver was pushed up, and anæmic. The spleen, quadruple the normal size, lay on the inner surface of the left ilium, its hilum directed upwards: it was torn from its connexions with the stomach and diaphragm, and hung by a pedicle which was formed by the vessels and the cellular tissue accompanying them, the pancreas and the ligamentum pancreatico-lienale. The spleen was twice rotated upon its axis in such a manner that the pancreas was turned spirally round the pedicle. The stomach was pushed up into the left hypochondrium, so that its posterior wall was directed forwards. Its coats were converted into a gelatinous, dark, reddish-brown,

friable mass; and a space of the size of a dessert-plate, at the fundus, was completely diffluent.

In the observations on the case, it is stated that Professor Dietl details a similar case observed by himself, in the 'Med. Wochenschrift,' 1854; and quotes three cases in another paper contained in the same journal for 1856. All the cases hitherto observed have occurred in females. It is due to an increase of the volume of the spleen, when there is not a coincident increase in the strength of its ligaments.

XIV. *A Case of Varix Anastomaticus between the Splenic and Azygos Veins, accompanying partial Obliteration and Ossification of the Vena Portæ; and severe Icterus caused by Gall-stones.* By RUDOLPH VIRCHOW. (Verhandlungen der Physikalisch. Medicinischen Gesellsch. Band vii. Heft 1.)

The case occurred in a man, aged sixty-six, of intemperate habits, who for about five months before his death suffered from icterus, with general prostration, but without symptoms indicative of any definite lesion.

At the autopsy, the ductus choledochus was found choked up with a biliary calculus. Several small ones filled the gall-bladder. The liver was reduced in size, granular and green throughout; there was general dropsy and an enlarged spleen. The vena portæ was almost entirely obliterated; close to the liver, at the main division of the vein, a hard mass of the thickness of the thumb was felt in it, and on dividing the vessel this appeared to be a plug of calcareous matter, which terminated in thin prolongations. On close examination, the mass proved to be pervious, and to be composed of the thickened internal coat of the vessel. As a result of this obturation, the vessels comprising the vena portæ were much enlarged, and varicose. A collateral circulation was established by means of three communications between the splenic and azygos veins, so that a large portion of the portal blood went directly to the heart; the azygos was converted into a series of large sacs, and appeared to be twisted on its axis. Some of the sacs were 1.5 centimètre (nearly half an inch) in diameter. There was much calcareous deposit in the coats of the different veins.

Professor Virchow enters into an interesting disquisition regarding the nature and causes of the different appearances found in this case, for which, as well as for the details of the case itself, we refer the reader to the original. We merely add that the author regards the diseased condition of the vena portæ as the result of pressure exercised by the gall-stones occupying the ductus choledochus.

XV. 1. *On Addison's Disease.* By M. TROUSSEAU. (Bulletin de l'Académie Impériale de Médecine. Tome xxi. No. 23, September 15th, 1856.)

2. *On the Present State of our Knowledge regarding the Bronzed Skin-Disease of Addison.* By L. DARNER. (Archives Générales de Médecine, Janvier, 1857.)

It is gratifying to find Dr. Addison's merits recognised by his distinguished confrère, M. Trousseau, who justly proposes that the browned skin-disease should be named after the discoverer. We willingly adopt the suggestion, and shall adhere to the term introduced into medical science by M. Trousseau.

After quoting the experiments of Brown-Séquard on the physiology of the capsules, M. Trousseau gives the details of a case which fell under his own observation. It occurred in a man, aged thirty, presenting the traces of early rickets, but who, with the exception of two hemorrhagic attacks, had always enjoyed good health. Five months before admission he began to fall off in flesh, and found his skin turning brown. No washing would remove

the colour. On admission on the 30th of July, his face and hands presented a much more browned appearance than the French soldiers show on their return from Africa; it had a slight tinge of blue. The remainder of the body was tattooed black, but the nipples, the arm-pits, and the genitals were darkest. The lips and gums were as black as those of a dog. The nails alone formed a contrast with the remainder of the body by their whiteness. A blowing murmur was heard in the large vessels; the blood (according to M. Robin) was that of a person slightly anæmic, and the urine contained a few pus-globules. There was slight pain in the renal region. Under the use of tonics he seemed to improve, but a state of general malaise and diarrhœa supervened about the middle of August, followed by extreme prostration, a loss of intellectual power, and incoherence. Death ensued on the 17th of August. The brain was found normal. The lungs were gorged with black blood, and contained a few tubercles at the apices. The liver was of normal size, but softened and of slate colour; the spleen enlarged and softened, of a reddish-black colour, and studded with minute white points: the kidneys apparently healthy, but the supra-renal capsules were transformed into large tumours nearly the size of hen's eggs, and studded with yellowish-white nodules resembling tubercle. Some are softened; they are united by a greyish fibrous tissue. M. Brown-Séquard, who made a microscopic examination of the morbid deposit, found it to be tubercle, some of which was cretaceous. A whitish liquid found under the envelope contained detritus of the capsule, with some pus.

A second case of Addison's disease similar to the last is detailed in the same place by M. Sécond-Féréol. The '*Gazette Médicale de Paris*' (Oct. 4, 1856), also contains a case of Addison's disease, communicated by M. Seux, of Marseilles, in a girl, aged twenty-four, but in whom the correctness of the diagnosis was not confirmed by an autopsy.

In a careful memoir on the subject of Addison's disease, M. Danner passes in review the evidence brought to bear on the subject. He arrives at the conclusions, that a relation has been satisfactorily proved to exist between bronzed skin and disease of the supra-renal capsules. To the cases just mentioned, M. Danner adds the *résumé* of one observed by M. Malherbe. These cases confirm the results obtained by English observers, and as, with the exception of two cases presented to the Pathological Society by Drs. Peacock and Hughes Bennett, none have yet been published either in England or France which demonstrate the existence of bronzed skin without a co-existent lesion of the supra-renal capsules, the evidence in favour of Addison's disease appears sufficiently strong to ensure its permanence in nosology.*

XVI. *On a Case of Multiple Abscesses in the Liver, originating in Inflammation of the Biliary Ducts distended with Bile.* By M. CRUVEILHIER. (*Archives Générales de Médecine*, Janvier, 1857.)

A washerwoman, aged thirty-two, was admitted under Professor Cruveilhier, with intense icterus, accompanied by severe pain in the region of the liver, extending into the right iliac fossa. No tumour was perceptible in the region of the gall-bladder. The affection had commenced a fortnight previously with pain in the right iliac fossa, and was followed a week later by icterus. On admission, the patient was extremely prostrated, the voice faint, the tongue very dry, with a fuliginous fur, and micturition and defecation were involuntary. The typhoid symptoms became more urgent, and death ensued a week after admission. The entire peritoneum was found to be invested with a purulent false membrane of icteric hue; several spoonfuls of bile were found between the left lobe of the liver and the stomach, which did not proceed from a ruptured

* At the time of our going to press, Mr. Hutchinson has brought forward a case at the Pathological Society, analogous to the one by Dr. Bennett. It is also right to state, that we have notes of four cases published at different times, in which absence or disease of the supra-renal capsules were not accompanied by bronzing.

gall-bladder, of which organ there was scarcely a vestige, but from the rupture of biliary abscesses which occupied the convex surface of the left lobe of the liver. This organ showed on section, the biliary ducts enormously dilated, and filled with yellow bile. The ducts presented here and there ampullae, with circular valve-like folds, but were otherwise healthy. There were also scattered through the liver about ten abscesses; the smaller ones were manifestly formed within the bile ducts; in the more advanced abscesses the inflammation had passed the limits of the biliary canals, and involved the hepatic tissue itself. The gall-bladder was shrunk up to a minute cavity capable of holding a raisin stone; it contained pulsatious matter and a biliary calculus. The latter was so placed as entirely to intercept all communication between the ductus hepaticus and the ductus choledochus. The author refers the distension and suppuration of the gall-ducts to the diseased state of the gall-bladder and the presence of the calculus. The main point to which he draws attention is the fact demonstrated by the case, that multiple abscesses of the liver may result from inflammation of the biliary passages, as well as from inflammation of the portal veins, and that they may be independent of purulent infection.

XVII. *Cases of Oedema of a Single Lower Extremity.** By F. W. LEWIS, M.D.
(Hollingsworth's Medical Examiner, Nov., 1856.)

Dr. Lewis details eight cases in which oedema occurred in one or the other lower extremity alone. Four he observed in Paris; the others occurred in his own practice in America. The conclusions to be drawn from these cases will be more palpable if we tabulate them:

No.	Sex.	Age.	Disease.	Limbs affected.	Post-mortem appearances.
1.	...	F. ... 50	Phthisis	Left leg	Left common iliac vein compressed by both iliac arteries; immediately below compression a firm coagulum extending to femoral vein; inner coat rough.
2.	...	F. ... (?)	Phthisis	Left leg	Left common iliac compressed by left common iliac artery; firm coagulum in iliac vein, extending into femoral; with traces of inflammation.
3.	...	M. ... 88	Chronic dysentery.	Left leg	Indurated inguinal glands, pressing on femoral vein.
4.	...	M. ... 43	Dysentery, diabetes, phthisis.	Left leg	Obliteration of iliac vein by enlarged glands; no coagula below the point of obliteration.
5.	...	F. ... 16	Phthisis	Left leg	Pressure upon iliac vein by iliac artery; coagulum below the point of compression.
6.	...	M. ... 40	Phthisis	Right leg	Indurated inguinal glands surrounding origin of right femoral vein; coagula; internal surface rough.
7.	...	F. ... 37	Phthisis	Right leg, shortly before death also the left	Coagulum in right iliac vein, apparently independent of any compression; the left iliac vein crossed by both iliac arteries.
8.	...	F. ... 23	Phthisis	Right leg	No appearance of compression; obliteration of right iliac and femoral by coagula; the femoral much thickened.

Dr. Lewis does not appear to be acquainted with the cases published by Dr. Bright, in his Medical Reports, showing the occurrence of obliteration of the veins by coagula as a result of wasting and debilitating disease, apart from any disease of the vessels themselves. His main object being to support the view which he states M. Piedagnel first to have promulgated, that these cases of unilateral oedema are due to compression exerted upon the iliac vein by the corresponding artery. His own cases, however, tend to show that, although this may often be the exciting cause of the intra-vascular coagulation of the blood, this explanation does not hold good universally. Only three of the

above cases are attributed to the compression exerted by the artery (Nos. 1, 2, and 5). Three were manifestly produced by the pressure exerted by a glauclular mass (Nos. 3, 4, and 6), and two were independent of any kind of compression (Nos. 7 and 8). On the other hand, in all there was a similar predisposing cause—viz., an exhausting disease; and it is probable that the influence thus exerted in the production of the symptom deserves more consideration than the author has bestowed upon it. It is well, however, in point of diagnosis, to remember that unilateral œdema may be brought about by direct pressure upon the abdominal vessels, as was shown in a case of abdominal cancer published by the Reporter not long since.* He occasionally attends a lady who for many years past has had a permanent and very marked œdema of the left arm, which can be traced to nothing beyond a cold; it in no way interferes with her general health, which is very good; however, when indisposed, there is generally a temporary increase in the œdema of the arm.

XVIII. *On the Sequelæ of Diphtheritis.* By Dr. FAURE. (L'Union Médicale, Tome xi Nos. 15 and 16.)

The extension of the diphtheritic or croupy exudation to the cavity of the mouth and nostrils, so constant in France, is almost unknown in England; nor are we in the habit of regarding the disease as one of a contagious character. It appears that the affection altogether puts on a more virulent form with our neighbours than it assumes on this side of the Channel. In the paper before us, Dr. Faure draws attention to a paralytic condition which is found to follow diphtheritis, but which, though previously observed by Bretonneau, Troussseau, and others, has not yet been described.

In certain cases, after the false membrane has entirely disappeared, and some time having elapsed, without apparent reason, the integuments become discoloured, livid, the joints painful, the limbs are deprived of all power, and the patient falls into a state of utter prostration. Generally the lower extremities refuse to support the body, and the arms no longer respond to volition; the movements are irregular; the velum palatis completely paralysed, is flabby, and floats about so as to be an obstacle both to deglutition and to articulation. All the muscles of mastication and those of the neck and chest are more or less paralysed; hence the food often lies in the mouth unswallowed, it causes regurgitation or respiratory spasm. Vision also becomes impaired, and the sensibility of the skin is much diminished. At times there is mental aberration. There is no reaction; fever rarely occurs, the prostration becomes tedious, and death ensues. The issue is not, however, necessarily fatal. Dr. Faure himself, being attacked by diphtheritis, taken by contact with the croupy matter of a child whom he was cauterizing, suffered some of the symptoms above described, and states them to have been very terrifying. He admits himself to be ignorant of the exact nature of the paralytic symptoms above detailed, but seems to incline to the view that they may be caused by a diphtheritic exudation within the ventricles.

The treatment consists in the administration of quina, steel, and other tonics, with a nutritious diet. Two cases are given in which, these remedies having failed, the immersion in cold water secured the recovery of the patient.

XIX. *Note on Glycœmic Gangrene.* Communicated to the Academy of Sciences by MARCHAL DE CALVI. (L'Union Médicale, Tome x. No. 144.)

Some years ago, M. Marchal de Calvi published a case of gangrene occurring in a diabetic patient. The man had suffered from a succession of furuncles, and one of his large toes then became sphacelated. His urine

contained 90 grammes of sugar to the litre (49½ drachms in 2·11 pints!). The patient improved after losing his toe; but two years later, having neglected himself, the gangrene returned and death ensued. Dr. Laudouze, of Rheims, soon after published a similar case. A third then occurred to M. de Calvi, in which a large gangrenous spot on one thigh was accompanied by diabetes mellitus; and a fourth is now given, in which the latter disease was associated with a large carbuncle at the back of the neck. The ages of the first two patients are not stated; those of the last two were respectively sixty and sixty-five. M. de Calvi suggests that the presence of sugar in the blood creates an inflammatory diathesis in the lining membrane of the vessels, and that, as the vital power is diminished in diabetes (as shown by the general depression), the inflammatory irritation thus produced is accompanied by a tendency to necrosis.

The author observes that the lithic-acid diathesis possesses a similar tendency of exciting gangrenous inflammation, and thus explains the origin of *gangrena scudis*, which, he says, is particularly common in England, on account of the large amount of animal food consumed; or, to use his own words, "where the mode of living places in contact with the lining membrane of the arteries the elements of excessive stimulation."

XX. *On Circumscribed Atrophy of the Skin.* By Dr. REUSS. (Vierordt's Archiv für Physiologische Heilkunde. 1856. Heft 4.)

Dr. Reuss reports two cases of a disease of which he states he has found no description in authors, and which appears to be almost identical in its characters with what we ourselves witnessed in April, 1856, in a young woman.

A lad, aged fifteen, at the end of 1855 had typhus, and while at its acme several parts of the skin were observed to undergo a peculiar change. They assumed a reddish-blue or reddish-brown colour; under a slanting light appeared whitish, of an asbestine or satiny gloss, and sharply cut off from the surrounding skin. They formed elongated streaks of half an inch to three inches in length, and were from one to four lines broad, and were all directed vertically or obliquely to the axis of the body. They were symmetrically arranged in both lower extremities below the trochanter major, above the patella, above the internal condyle of the femur, and across the outer side of the leg; altogether there were from twenty to thirty such streaks on each leg. The affected parts were sunk below the level of the surrounding skin; and when pressed, the bluish colour disappeared, and one could see the blood return into the subjacent dilated capillaries. The sensibility of the parts was diminished. Three months later, the appearances had somewhat faded, but were essentially the same. The second case resembled the last, but was not so well marked: it occurred in a young woman, aged twenty-eight. The one we ourselves observed occurred in a servant-girl; aged twenty-nine, who, after suffering from some severe abscesses, found that small white spots formed on the left side of the neck, extending from the sternum over the clavicle towards the spine—like zoster. The spots were sharply defined, very smooth, and bloodless; and looked as if the sub-epidermic tissue had been punched out. There had never been any elevation of the tissues or secretion. The outline was generally circular; or where two or more spots had coalesced, the outline became oval. They varied in size from the point of a pin to a split pea. There was a small patch of similar white spots on the right hypochondrium. Her general health, at the time we saw her, was good.

Like Dr. Reuss, we failed at the time in meeting with anything analogous in works on skin diseases. In the fourth edition of Mr. Wilson's work 'On Diseases of the Skin' (p. 378), which has just appeared, the affection is described under the name of *Morphua Alba*.

XXI. Case of Sclerema, or Pachydermatous Disease. A Disease consisting in a Peculiar Induration of the Skin over a great part of the Body. By ROBERT M'DONNELL, M.B. (Dublin Hospital Gazette, Nov. 1, 1856.)

We quote the following case almost literally as it appears in the original paper :

Catherine Carr, aged twenty-four years, was admitted into the Richmond Hospital under Mr. Adams's care, June 18th, 1854.

She continued for some months in the hospital as a patient. Her complaint did not render her unfit for useful occupation—she accordingly received employment in the institution: she has therefore been now under observation for a period of rather more than two years. As to her present condition, the integument covering the face, fore part of the chest, and arms, presents in a very marked degree that induration which forms the most striking feature of her disease. On the face the skin is tense and shining; around the mouth, on the forehead, and more particularly across the nose, it seems as if tightened from contraction, and its rigidity interferes with the natural play of the features. Across the chest the skin is so tightly drawn as to produce a feeling of constriction. The hardness and stiffness are nowhere so great as in that covering the arms and hands. It is with difficulty moveable over the deeper structures; it has altogether lost its pliancy and softness; it feels like brawn; one might as easily pinch up between the finger and thumb the skin on the back of a pig as the skin over these parts. The free movement of the fingers is in a great degree impaired; the patient cannot perform any delicate handiwork; her former occupation of dressmaking she has been obliged to abandon, from her inability to handle needles, &c. The contraction of the skin in the bend of the elbow prevents the possibility of straightening the arm: in attempting to lift heavy weights, the skin in this locality has actually torn and become fissured, and in the bend of each elbow scars, the result of this, remain.

The tension of the skin over the knuckles, and the prominence of the lower extremity of the ulna, cause these points to ulcerate readily if exposed to friction; the power of feeling is slightly, if at all, impaired. The skin on the back, on the lower part of the body, and lower limbs, is in a perfectly normal state.

The patient complains of pain in the hands, like the stinging of nettles. This pain is made worse by exercise, is much relieved by bathing the hands in warm water, and is most troublesome after going to bed at night. She suffers from dyspepsia, and has had at irregular intervals violent attacks of bilious vomiting, after which she observes a temporary improvement in the condition of the skin; in other respects her general health is good. There is no derangement of the menstrual functions.

Cold seems to have been the starting-point of the disease, as it followed a wetting she got four years ago while recovering from an attack on the chest.

The rigidity of the skin commenced in the right arm, and passed across the chest to the other; the face was attacked later.

In the case of this patient, only temporary benefit has been derived from the various modes of treatment which have been resorted to: from nothing did she derive so much advantage and relief as from frequent warm baths and the use of cod-liver oil, which, besides being administered internally, was rubbed in over the indurated integuments after each bath.

XXII. A Rigid, Anchylosed Human Skeleton, the Result of Rheumatism. By H. P. C. WILSON. (Hollingsworth's Medical Examiner, June, 1856.)

E. E., a German woman, was admitted into the Baltimore Almshouse, of which Dr. Wilson is the physician, in 1846, on account of her being incapacitated from labour by chronic rheumatism. She was twenty-one years old,

and already experienced great difficulty in using her limbs. She became gradually worse, and in March, 1855, she is described as lying on her back, unable to move a single joint, save a very partial motion of the lower jaw and the costo-vertebral articulations. Her hands were pronated, and her fore-arms flexed upon the arms, and resting upon the upper part of the abdomen. The soles of her feet were applied one to another, her legs were flexed upon her thighs, and her thighs upon the pelvis. She had lain in this condition for nearly nine years. Still the vegetative functions were well performed. She died of typhoid fever, supervening on scurvy, July 9th, 1856.

The interarticular cartilages of the upper and lower jaw were found completely ossified, with such an amount of bony matter thrown out in and around, the joint as to allow but very partial motion. The occipito-atloid articulation was so ankylosed, that no traces of a joint existed. The intervertebral substance was converted into bone, so as to render the spinal column an inflexible pillar. The sterno- and scapulo-clavicular articulations were obliterated, the xiphoid and costal cartilages ossified, the humeri ankylosed to their respective scapuli; the same was the case with every joint of the upper and of the lower extremities. No joint in the body, save the two above mentioned, presented any movement. The bones were exceedingly light, not weighing one-third as much as their counterparts in the healthy subject. The earthy matter was apparently wholly removed from the cancellated structure.

XXIII. On the Period of Life at which Hysterical Affections are most liable to be developed. By Dr. BRIQUET. (*L'Union Médicale*, Sept. 4th and 20th, 1856.)

Dr. Briquet passes in review the doctrines taught by various writers on the subject of the occurrence of hysteria, and then analyses a series of 467 cases occurring in his own practice in the course of ten years, in which the commencement of the affection was carefully noted. Some of his inferences would probably not be universally adopted, but his numbers are important, the more so as they are in the main corroborated by the analysis of numerous cases collected by Dr. Landouzy, whose results are also given in the following table:

		Landouzy.		Briquet.	
From birth to 10 years	...	0 cases	...	61 cases.	
" 10 " 15	...	48	"	104	"
" 15 " 20	...	105	"	162	"
" 20 " 25	...	80	"	73	"
" 25 " 30	...	40	"	28	"
" 30 " 35	...	38	"	13	"
" 35 " 40	...	15	"	12	"
" 40 " 45	...	7	"	3	"
" 45 " 50	...	8	"	1	"
" 50 " 55	...	4	"	2	"
" 55 " 60	...	4	"	1	"

Dr. Briquet attributes the differences that are manifest between his table and the numbers given by Dr. Landouzy to the circumstance of his having exercised great care in determining the exact commencement of the disease. The following are his chief conclusions:

1. A considerable number of cases of hysteria occur while the sexual organs are yet in a rudimentary state.
2. The development of hysteria does not bear a direct ratio to the period of activity of the sexual organs, as this period commences at eleven or twelve years, and does not cease till the fortieth or forty-fifth year. On the other hand, hysteria progressively advances up to the age of twenty, and very rapidly

diminishes from the twentieth* to the forty-fifth year. Consequently, of thirty-four years of sexual activity, there are only from nine to ten during which hysteria prevails, while it becomes less frequent during the remaining twenty-four; and yet the sexual activity is greater from twenty to forty-five years of age.

QUARTERLY REPORT ON SURGERY.

By JOHN CHATTO, Esq., M.R.C.S.E., London.

I. On the Duration of the Incubation of Syphilis. By Prof. SIGMUND. (Wiener Wochenschrift, 1856. Nos. 32 and 45.)

WHILE the space of time within which symptoms of *secondary* syphilis manifest themselves may be determined with exactitude,* those which have been termed *tertiary* symptoms present in this respect greater difficulties. The question whether tertiary are always preceded by secondary symptoms, is to be answered in the affirmative; and any doubts that may prevail upon the subject arise from the latter not having been sought for with sufficient care. The cases are frequent enough in which the patient first presents himself to the practitioner with tertiary symptoms, the secondary having been overlooked, and in the meantime having quite or partially disappeared. In other cases, affections of the skin, the glands, or the mucous membrane, do exist, showing plainly enough the presence of secondary symptoms, but which have either excited no attention or have been referred to some erroneous origin. These are the cases in which patients are said to have continued well in the interval between the manifestation of primary and tertiary symptoms; but Prof. Sigmund has never met with a single example of this, having been usually able to point out even several of these appearances, or remains of them, which, conjoined with the history furnished by the patient, were amply convincing.

Numerous cases which the author has observed step by step during several years have taught him that the occurrence of tertiary symptoms takes place very rarely so soon as to give them the appearance of immediately following the primary; and in those rare instances in which they have been observed within two to four months after the chancre, the existence of a yet older chancre has been almost always visible or acknowledged—to which, in fact, the existence of such symptoms is due.

In order to elucidate the period of incubation of tertiary symptoms, Prof. Sigmund has selected from his notes 1741 cases which presented them in marked forms, and in which the periods of their appearance and duration were accurately observed. In the following table, the shortest, the medium, and the longest periods are indicated within which they exhibited themselves after the appearance of the primary ulcer:—

		Months.	Months.	Years.
568	{ Inflammation of bone, or cartilage, or peri- osteum, or necrosis of bone or cartilage. }	3	24	41
547	Papular or pustular cutaneous affections . . .	6	11	7
292	Scaly syphilides	9	16	13
183	Cutaneous ulcers	17	22	20
85	Perforation or loss of soft palate	21	32	19
19	Tuberculosis of cellular tissue	43	59	40
27	Disease of the nails	37	48	22
20	Contraction of tendons	41	71	7

1741

* See British and Foreign Medico-Chirurgical Review, Jan. 1857, p. 266.

II. *On the Ligature of Arteries in Suppurating Wounds.* By M. NÉLATON.
(*Gaz. des Hôpitaux*, 1857. No. 1.)

In one of his recent clinical lectures, M. Nélaton made the following observations, the occasion being a secondary hæmorrhage in the palm of the hand. Nothing is more difficult, he observed, than to arrest a hæmorrhage of the hand, especially when this is consecutive—that is, when the wound is covered by pyogenic granulations. If not previously instructed as to the proper management of these secondary hæmorrhages, you will be extremely embarrassed. The blood flows, you employ compression, and it ceases; but the hæmorrhage will not be long before it returns, and will then be uninfluenced by compression. If compression be made above the wound, œdema takes place in all the subjacent parts, and the hæmorrhage soon returns. The radial, or the ulnar, or the brachial may be tried, and yet the bleeding does not stop. Meeting such a case, M. Nélaton formerly was quite at a loss to know what to do, impressed as he was with Dupuytren's *dictum*, that arteries in a suppurating wound will not bear the ligature, the premature fall of this infallibly giving rise to a return of the hæmorrhage. Nevertheless, he ventured to tie the two ends of the bleeding vessel of the palmar arch; and although the ligature fell sooner than usual, no hæmorrhage followed. He has frequently since then tied vessels under analogous circumstances, and has never seen hæmorrhage as a result of the fall of the ligature. Although, therefore, this fall takes place earlier (usually about the third or fourth day) than is the case with a ligature applied to a healthy artery, it is not premature, for bleeding does not follow. Examining the matter experimentally upon the dead body, M. Nélaton has found that ligatures applied to arteries in a state of suppuration (as in patients who have died after amputation) produce identically the same effects upon the coats of these vessels as upon arteries remote from the seat of inflammation; the same division of the inner coats and preservation of the outer taking place in the two cases. He feels, therefore, perfect confidence in the soundness of the practice, supported as it is by numerous cases that have occurred to him, both in private and hospital practice.

III. *On the Valvular Nature of Strangulated Hernia.* By Prof. ROSER.
(*Vierordt's Archiv*, 1856, pp. 355–368.)

Incarcerated hernia, in Prof. Roser's opinion, essentially depends upon a valvular mechanism. The obstruction of the contents of the intestine in the incarcerated portion arises from the folds of the mucous membrane lying valve-like against each other, and preventing the passage of gas, fluids, &c. Looking at the complete obstruction which takes place in the hernia, one might suppose that the parts concerned are compressed as closely as is an artery when tied. But all observation teaches us that no such pressure is here exerted; for while the venous circulation is only partially arrested, the arterial remains uninterrupted. Were it otherwise, indeed, the intestinal fold would become rapidly gangrenous. The question is why, if there is space enough to allow of the circulation in the part to continue, cannot we by pressure return the contents of the intestine.

The nature of the obstruction may be shown by a simple experiment. If a noose of intestine, containing some fluid or air, be brought within a ring about the size of the finger, and then pressure be made upon the apex of the noose so as to force the contents against the compressing body, complete obstruction to their passage will be found to prevail. And yet a catheter may be passed beside the intestine, and, by drawing the latter a little to one side, a considerable space will be perceived. If pressure be made in front of the encircling ring, the contents of the intestine are forced back; but if we press at the end

of the noose, the portion that lies next to the ring is forced against the latter, and the canal is closed. If we open the noose on its convex side, and fill it with water, we may observe the valvular disproportion of the intestinal folds, which resemble the valves of the aorta when acting under water.

Deferring to another occasion the exposition of his theory of the taxis deducible from these views, Prof. Roser now points out the support they give to the operation for hernia, without opening the sac—a procedure he regards as one of the greatest improvements in surgery since the days of Paré. He believes it has made little progress in Germany and France, as compared with England, in consequence of the prevalence of a false theory of strangulation of hernia and erroneous ideas on the surgical anatomy of hernia. In respect to the first of these, too exaggerated an idea of the constriction that takes place has been entertained, leading to a belief that the mere dilatation of the tendinous margins could not suffice for the return of the distended and indurated hernia. The above experiment, which proves the valvular nature of the obstruction, must surely give more confidence in the efficacy of the external incision. We have not space to follow the author in his description of the anatomy of femoral hernia, and which, indeed, essentially resembles that furnished by Cooper.

IV. *On the Diagnosis of Obscure Forms of Ocular Congestion.* By Dr. QUADRI. (*Annales d'Oculistique*, tome xxxvii. p. 25.)

The diagnosis in obscure internal ophthalmias is often very difficult, and may lead to their being mistaken for purely nervous affections. Dr. Quadri cites a case in point in which the ophthalmoscope exhibited the retina in a normal state, and in which the absence of all symptoms of inflammation would have justified him in pronouncing a simple neurosis, when, happening to see the patient as soon as he awoke, he observed a very marked pericorneal injection, like that seen in iritis, and which at the end of an hour had disappeared. The same thing occurred the next day, and, in fact, the case proved an example of iritis, which was cured in the usual way, but the existence of which was indicated by no other symptom. In the normal state of the eye we observe only congestion of the superficial network of the conjunctiva on awakening; but the deeper-seated vessels are not engorged, unless they have become dilated as a consequence of disease. The observation of the eye at this hour may thus be of great utility in obscure cases.

V. *On Apoplectic Ophthalmia.* By Dr. QUADRI. (*Ibid.*, p. 26.)

The inflammation of the membranes of the eye occurring in persons advanced in age and disposed to apoplexy, assumes special forms, calling for extraordinary treatment, and justifying, in Dr. Quadri's opinion, the appellation of apoplectic ophthalmia. It is usually manifested under the form of palpebral ophthalmia, the chief characteristic of which is the remarkable tendency it possesses of resuming an acute form without any obvious cause, and the complete resistance it offers to the ordinary means of relief. It is observed in persons of a certain age, whose configuration is that usually termed apoplectic, and is often preceded or accompanied by the various precursory symptoms of apoplexy. In other cases, however, it has been the first symptom of this affection, so that palpebral congestion, remarked in persons with disposition to apoplexy, should be well observed, as it may indicate to us the means of warding off a threatened attack. We usually may observe in these persons the puriform palpebral flux of Searpa come on slowly, and continue for months or years, without deriving any advantage from the local remedies that are usually so useful. There seems, indeed, in these cases, an intolerance of astringents,

half the usual doses being scarcely borne. If larger ones produce a notable anclioration, this is soon followed by a far more important affection of the deeper parts. Under mild doses of these astringents the affection seems to be yielding, when suddenly the acute stage returns, to again become relieved, and again to be followed by relapse, until the attack of apoplexy itself comes on. After several of such relapses, ectropion supervenes—the *ectropion senile* of the ancients.

In another form, a kind of purulent ophthalmia is observed, being accompanied by much photophobia, and an abundant secretion of yellowish, viscous mucus at the edge of the eyelids. There is here the same intolerance of astringents and the same disposition to relapse; and affection of the cornea, leading to ulcers, pannus, and blindness, may be the result.

This ophthalmia may long precede the attack of apoplexy, the period in Dr. Quadri's experience never having been less than one or more than three years. The prognosis is not a favourable one. Left to itself, the disease gets worse and worse, and ends in apoplexy; and although by the aid of art it may be relieved, and the intervals of relapse rendered longer, a radical cure never is produced. The palpebral flux, capable of much anclioration, is rarely cured, and the bleunorrhoeal ophthalmia is almost always followed by a pannus, which the frequent returns of the disease render incurable. In treating the disease, the prophylaxis is of the utmost importance, the slightest error of regimen leading to relapse. The medical treatment of the apoplexy requires no description; but Dr. Quadri states that he has derived great advantage from the red sulphuret of mercury combined with a little aloes. Collyria are ill borne, and ointments, such as Jaunin's or the Edinburgh citrine, both used diluted, are preferable. The bleunorrhoeal form requires caustic substances to be used with the extreme caution. Local and general bleeding is here of great value, and may often arrest the progress of a relapse. Blistering the nape must be rigorously prohibited, as rather disposing to than preventive of apoplexy.

VI. *Case of Myopathic Luxation.* By Dr. FRIEDBERG.
• • (Oesterreichische Zeitschrift, 1857, No. 1.)

O. H., when fifteen months old, fell with his left hand stretched out, and some hours after complained of pain in the arm. Two days later, swelling was observed at the wrist, as well as at the shoulder and left cervical region; that of the latter parts not disappearing for five or six weeks. It was found then, that although the child could use its arm, it forbore as far as possible, occasionally complaining of pain in it. At a still later period, frequent fugitive convulsive movements of the limb appeared, as well as progressive emaciation.

Various means having been uselessly tried, the boy, two years after the accident, was brought to the author's Klinik. The left arm was then found to be an inch longer than the right. The upper arm had lost a sixth of its circumference, but the other parts of the extremity were less emaciated. The emaciation affected the *pectoralis major*, the *delissimus dorsi*, the anterior superior portion of the *trapezius*, and all the muscles proceeding from the shoulder-blade to the arm. The middle portion of the deltoid had almost disappeared, as had the *supra-spinatus* at its external two-thirds. The scapula and humerus were normally developed. The acetabulum was empty, but its capsule was not thickened. The head of the humerus, which had sunk downwards an inch, could be easily restored to its place, from which, however, it immediately fell down again. Slight fibrillary contractions were observed in the muscles about the shoulder, the force of which was somewhat increased on the application of

cold. The child could not execute any movement of the upper arm; while electricity only excited feeble contractions in the *pectoralis*, *latissimus*, and a portion of the *deltoid*, the middle of this last and all the muscles of the humerus being insensible to its action.

The child's health and development were good, and the author saw him yet a year later. The affection had continued to make progress, so that the left arm was a fourth less in circumference than the right, and hung motionless by the side; while the elasticity of the muscles of the fore-arm had diminished, as had the power of using the hand. The muscles attached to the humerus seemed like mere thin relaxed cords, and its development, as well as that of the scapula, had been remarkably retarded. The disappearance of the *deltoid* was almost complete, and the glenoid cavity seemed to have become more superficial. The lower half of the *trapezius* and the *rhomboidens* had also remarkably diminished.

Thus it appears that all the symptoms which have been assigned to the so-called *progressive muscular atrophy* may arise from traumatic inflammation of muscles. At the time of the accident in this case, the muscles surrounding the shoulder-joint underwent violent traction through the sudden pushing upwards of the head of the humerus. This was followed by pain and increased sensibility, and afterwards by the relaxed state of the arm. The inflammation not being dissipated, led to degenerative atrophy, which extended from the muscles originally involved to the others in their vicinity.

In explanation of the direction taken by the luxated humerus, Dr. Freidberg observes, that the disturbance of the nutrition of muscles, which leading to their relaxation, may permit dislocation, may occur in various ways, whether from the operation of violence, the propagation of inflammation from a joint, the poisoning the blood as by lead, or scarlatina contagion, through a continued interruption of innervation, or a diminution of the supply of arterial blood, &c. This deprivation of their elasticity renders them unable to oppose the action of their antagonists. This myopathic luxation may occur in different joints under more or less complicated conditions; and it is met with in its simplest form in the shoulder. Here it might indeed *a priori* be especially expected to occur, owing to the extensibility of the capsule and ligaments, rendering the retention of the head of the bone within the cavity exclusively a muscular action. And thus it is, while in the shoulder-joint a complete luxation may be the immediate effect of a myopathic paralysis, in other joints such luxation is at first only incomplete, its completion depending upon other secondary circumstances. For the production of a dislocation perpendicularly downwards, as observed in the present case, it is essential that the *supra-spinatus* muscle be either torn, or have lost its elasticity in consequence of the disturbance that has been produced in its nutrition.

VII. *Rupture of the Right Rectus Abdominis Muscle.* By Dr. RICHARDSON. (American Journal of the Medical Sciences, Jan. 1857, p. 41.)

On Feb. 20th, a healthy athletic young man, aged twenty-eight, immediately after hopping over a narrow ditch, was seized with acute, persistent pain about two inches below, and to the right of, the umbilicus. He heard a distinct snap; and nausea, together with unavailing desire to evacuate the bowels, although he had recently had a stool, came on on March 1st. There was an increase of pain, frequent vomiting, and constipation, together with marked rigidity and increased sensibility all over the abdomen, while at the seat of injury a flat intumescence was observed. Leeches and then ice were applied to this, and chloroform was administered occasionally. Next day, as the patient's condition was aggravated, it was determined to operate, under the

idea that a strangulated ventral hernia was present. The *fascia profunda* was exceedingly tense, and upon dividing it, a large coagulum of black blood was found occupying an irregular cavity, very like that of a diffused false aneurism. It was supposed to weigh about half a pound, and pressed deeply upon the peritoneum and bowels. The peritoneum was found uninjured, and advanced forwards as the coagulum was removed. When this was effected, the nature of the accident became apparent. The right rectus abdominis, with the corresponding epigastric artery and its accompanying vessels and nerves, as well as the sheath of the rectus, were torn completely across, the ends of the muscle having retracted, and being one inch and a half to two inches apart. "The precise point of rupture was a central one between the right linea alba and linea semilunaris, and the linea transversa which intersects the umbilicus, and the linea transversa next below it." No ligature was employed, torsion being applied to one artery, and warm-water dressing to the wound. On the 4th, a considerable coagulum was found again occupying the cavity of the wound, and resting on the peritoneum; but there was not much tenderness of the abdomen. Sleep had been procured by morphia, and as no stool had occurred since the accident, aperients were ordered. From this time the patient went on well, the wound healing kindly, leaving a depressed surface.

In relation to this case, we may furnish a short account of a paper recently contributed by Virchow to the Würzburg 'Verhandlungen' (band vii. p. 213), bearing the title, *On Inflammation and Rupture of the Rectus Abdominis*.

During the last few years, several cases of inflammation and rupture of this muscle have come under his notice, which have proved interesting from the analogy they bear to examples of myocarditis and rupture of the heart. In most of the cases, the rupture has occurred about midway between the umbilicus and the pubes, usually being confined to one side. In some cases in which he has found parenchymatous changes without rupture, these have always been found towards the lower part of the muscle.

Isolated rupture of muscles from external violence are of very rare occurrence; and where great traction has been exerted, it is rather the tendon than the muscle that gives way. So, too, the ruptures which sometimes take place from excessive action, as in tetanus, must be very rare, and of a microscopic character. Those resulting from excessive rigor mortis, described by Rokitsansky, M. Virchow has never seen. The comparatively frequent parenchymatous or spontaneous rupture presupposes organic changes of the muscle, inducing a pathological fragility. It is characterized by the slight amount of force necessary for its production, and the existence of changes in the immediate vicinity of the rupture, which are not infrequently, to greater or less extent, in other parts of the muscle. These changes Virchow has exactly described in his account of muscular inflammation, in the 'Archiv' (band iv. p. 266). They may consist in either a true fatty metamorphosis of the interior of the primary bundles, or of peculiar softenings which at last lead to a granular degeneration of the muscular substance. This last form it is that often excites inflammatory appearances, which are especially seen during metastatic processes, but which may be produced in the same way as in the heart when its supplying arteries are obstructed. The first form takes place more slowly, as in aged persons, in paralytic parts, and after protracted muscular inactivity.

So far as Virchow has observed, rupture of the rectus has always been preceded by this organic metamorphosis of its substance; and in quite recent cases, the same changes have been found at the circumference of the ruptured parts which have been found in diseased but unruptured muscle. After describing the microscopic appearances at the various stages of the affection, he goes on to say that he has always found rupture commencing at the posterior or peritoneal surface of the diseased muscle. The ruptured part becomes at once filled with blood, which coagulates and may be infiltrated, or projecting and

visible through the peritoneum. Of the 7 cases Professor Virchow has met with in three years, 4 occurred in women aged nineteen, thirty-five, fifty-nine, and sixty-five years; and 3 in lads of fifteen, twenty-two, and twenty-three years. Four of the cases were examples of typhus, most having entered the ulcerative stage; in 2 others there was marked tuberculosis, and in another scorbutus. In most of the cases the proximate cause of the rupture was violent coughing. Virchow believes that some of the cases described by authors as "neuralgia epigastrica," "peritonitis musculosus," "rheumatismus muscul. abdom.," may be examples of such rupture, going on in certain instances to suppuration.

VIII. *A Contribution to the Statistics of Fractures and Dislocations.* By Dr. E. GURLT. (Deutsche Klinik, 1857; Beilage, No. 1.)

In this paper, Dr. E. Gurlt furnishes statistical particulars of 1631 fractures (occurring in 1541 individuals) treated in the civil hospitals of Berlin during five years (1851-6). These he compares with the other statistical accounts that have been published. We are only able to notice some of his tables and conclusions, and first we may give an abstract of the comparison he makes between his own figures and those of other observers:

	1. Malgaigne.	2. Wallace.	3. Norris.	4. Lente.	5. Matiejowski.	6. Lonsdale.	7. Gurlt.	8. Middeldorpf.	9. Mebes.
Head & face	95 ...	127 ...	128 ...	193 ...	44 ...	94 ...	89 ...	10 ...	0
Trunk	288 ...	146 ...	105 ...	52 ...	137 ...	392 ...	158 ...	79 ...	13
Clavicle	225 ...	148 ...	118 ...	158 ...	58 ...	273 ...	123 ...	32 ...	51
Humerus	320 ...	142 ...	377 ...	161 ...	134 ...	118 ...	216 ...	27 ...	46
Fore-arm	318 ...	142 ...	377 ...	269 ...	156 ...	384 ...	309 ...	60 ...	54
Hand	58 ...	22 ...	62 ...	0 ...	32 ...	116 ...	157 ...	25 ...	0
Femur	308 ...	291 ...	195 ...	280 ...	199 ...	181 ...	232 ...	25 ...	64
Patella	45 ...	28 ...	28 ...	30 ...	15 ...	38 ...	22 ...	3 ...	0
Leg	652 ...	589 ...	380 ...	579 ...	293 ...	289 ...	283 ...	59 ...	93
Foot	19 ...	7 ...	47 ...	0 ...	18 ...	14 ...	32 ...	11 ...	0
Unspecified	19 ...	10 ...	1 ...	0 ...	0 ...	0 ...	10 ...	0 ...	0
Totals	2347 ...	1810 ...	1441 ...	1722 ...	1086 ...	1901 ...	1631 ...	325 ...	321

We may notice the following of the author's observations:

1. *The Relative Frequency of certain Fractures.*—By the above table, it will be seen that, while in Nos. 1, 2, 3, 4, 5, and 9, the number of fractures of the lower extremity far exceeds that of the upper, the reverse of this is the case in Nos. 6, 7, and 8. This probably arises from the former series not embracing out-patients treated at their own homes, as is the case with many persons suffering from fractures of the upper extremities.

2. *Sex and Age.*—Although the great predominance of male subjects is well known, yet this is stated in very different proportions by different authors. Thus, Malgaigne states it at $2\frac{1}{2}$ to 1, Lente at about 8 to 1, Matiejowski at 2 to 1, Middeldorpf at 3 to 1, Mebes at $3\frac{1}{2}$ to 1, and Gurlt at $3\frac{1}{2}$ to 1. These proportions are quite destroyed in particular fractures, as, for example, in that of the neck of the femur, which in the author's cases presented itself forty-five times in women to thirty-one times in men—this depending upon the influence exerted by age in determining the proportion of fractures. From another table, given by Dr. Gurlt, it appears that, while little difference exists between the sexes early in life, as this advances females are more and more favoured until after forty, when the male predominance declines, and after seventy is replaced by that of females. The following is another comparative table:

Ages.	Maligno.			Lente.	Matiejowski.			Gurlt.			Mabes.		
	M.	F.	Tot.		M.	F.	Tot.	M.	F.	Tot.	M.	F.	Tot.
1 to 10 ...	45	18	63	...	95	...	64	27	91	...	177	88	265
11 to 20 ...	179	25	204	...	221	...	118	43	161	...	167	28	195
21 to 30 ...	269	87	356	...	454	...	114	38	152	...	249	25	274
31 to 40 ...	849	87	932	...	413	...	153	36	189	...	206	18	224
41 to 50 ...	316	94	410	...	217	...	116	42	158	...	136	18	154
51 to 60 ...	268	158	426	...	85	...	116	53	169	...	105	50	155
61 to 70 ...	183	133	316	...	40	...	47	47	94	...	41	31	72
Above 70 ...	75	95	170	...	8	...	27	45	72	...	12	34	46
Totals	1680	697	2377	...	1633	...	755	331	1086	...	1093	290	1383
											244	77	321

Dr. Gurlt explains the larger proportion of children contained in his own portions of the above table by the fact that he has embraced in it cases of that age that are usually treated as out-patients, or at special hospitals. Another table he gives shows the influence exerted by age on special fractures. Thus, below fifteen in his cases there is no example of fracture of the spine, ribs, olecranon, patella, or malleoli; while there are more fractures of the upper extremity than at any other period of life. Thus, among the 1631 fractures, there occurred between the ages of one and ten 49 fractures of the clavicle, 44 of the condyles of the humerus, and 46 of the bones of the fore-arm. The preponderance of fractures of the upper extremity is considerably greater during the first decennial period than later. Thus, while in the period one to ten years the fractures of the upper extremity amounted to 196, and those of the lower to 62, in the period twenty-one to thirty years the former were 125, and the latter 51. The proportion which fracture of the thigh bears to that of the leg at different ages is also seen in the following table:

	1 to 10.	11 to 20.	21 to 30.	31 to 40.	41 to 50.	51 to 60.	61 to 70.	Above 70.
Body of femur	51	18	11	9	6	7	13	9
Neck of femur	4	22	3	12	11	10	12	16
Leg	11	30	52	64	20	26	7	5

3. *Proportion to Population.*—Comparing the numbers of his cases with that of the civil inhabitants of Berlin, the author finds remarkable differences as to age and sex. Thus:

From 6 to 14,	About 1 fracture in 256 males and 895 females.
1 to 14,	1 " 252 " 568 "
15 to 60,	1 " 167 " 1051 "
Above 60,	1 " 134 " 160 "

4. *Time of the Year.*—According to a table given by the author, in which the fractures are distributed according to the months in which they have occurred, the greatest number happen in January, February, and March; then in June, July, and August; next in September, October, and November; the fewest occurring in December, May, and April. This proportion is, however, not constant, for there is no single month during the five years that has not varied in this respect.

The author makes other observations upon the side of the body in which the fractures preferentially occur, the proportion of compound to simple fractures (in his cases fifteen per cent.), &c.; but these do not seem of sufficient interest to call for notice.

Dislocations.—These, observed over the same space of time, are comparatively few in number, and are compared by the author with the figures furnished by Malgaigne and Norris.

Dislocations.	Malgaigne. Norris.		Gurlt.		
	Total.	Total.	M.	W.	Total.
Jaw	8	22	—	2	2
Spine	5	1	—	—	—
Sacro-iliac symphysis	1	—	—	—	—
Clavicle	42	12	6	—	6
Shoulder	370	101	48	17	65
Elbow	52	19	12	6	18
Wrist	16	4	1	1	2
Thumb	21	5	6	—	6
Fingers	10	2	1	1	2
Hip	40	21	13	2	15
Knee	9	1	3	—	3
Patella	2	—	2	1	3
Ankle	31	2	—	—	—
Metatarsus	2	3	2	—	2
Toes	—	1	—	—	—
Totals	609	174	94	30	124

In relation to sex, the author gives the following comparison at different ages, taking all the dislocations together:

Ages.	Malgaigne.		Gurlt.	
	M.	F.	M.	F.
2 to 10	6	2	5	1
11 to 15	12	1	5	—
16 to 25	68	11	22	4
26 to 45	168	45	35	9
46 to 60	145	40	20	6
61 to 70	68	37	1	4
Above 70	22	18	2	5
Not given	—	—	5	—
Totals	489	154	95	29

Combination of Fractures and Dislocations.—In the 1631 fractures reported by Dr. Gurlt, there were 24 examples of a combination of dislocations; in 10 of these the dislocations occurring in other parts of the body, and in 14 complicating the same extremity. Of these, 7 were examples of fracture of the neck of the humerus with dislocation; 2 fracture of the scapula with dislocation of the humerus; 4 fracture of the internal condyle of the humerus with dislocation of the elbow; and 1 fracture with dislocation of the metatarsi. Malgaigne states that among 2358 fractures observed at the Hôtel Dieu, only 4 were complicated with dislocation; while in 1054 observed at the St. Louis, 13 dislocations also occurred.

IX. *The Results of 100 Lithotripsy Operations.* By Dr. VICTOR V. IVANCHICH. (Wien Wochenschrift, 1856, Beilage to 51.)

In this paper Dr. V. Ivanchich, of Vienna, furnishes a chronological list of 100 cases of lithotripsy that have occurred to him, giving the name of each patient, and a very short summary of the particulars of his case. The following are the conclusions he arrives at from a general view of the whole number.

1. *The ages were as follows:*

- In 51 chronic endometritis.
 „ 25 chronic oophoritis.
 „ 23 ovarian tumours.
 „ 12 uterine polypi.
 „ 6 fibroid tumours of uterus.
 „ 9 hypertrophy of uterus.
 „ 1 elephantiasis of outer genitals.
 „ 6 women, no pathological condition of genitals was found.
 „ 16 anteversions—1, irritation of pudenda; 4, endometritis chronica; 5, oophoritis chronica; 3, ovarian tumours; 1, polypus; 2, hypertrophy of uterus.
 „ 13 retroflexions—1, irritation of pudenda; 6, endometritis chronica; 2, oophoritis chronica; 2, ovarian tumours; 1, fibroid tumour; 1, elephantiasis of pudendi.
 „ 10 anteversions—2, irritation of pudendi; 3, endometritis; 2, ovarian tumour; 1, polypus utero; 2, hypertrophy of uterus.
 „ 1 retroversion there was chronic oophoritis.

2. M. Follin describes a method of applying carbonic acid gas to the uterus. He confirms by his experience the utility of Dr. Simpson's mode of treating painful conditions of the womb by means of this agent.

3. From time to time we have had several statistical analyses of the cases in which ovariectomy has been attempted or performed. Dr. Lyman's—the most recent—embodies additional facts, some of which we extract. Dr. Lyman's researches embrace 300 cases. Of these, 33 were performed by Dr. W. L. Atlee, 32 by Dr. F. Bird, and 50 by Dr. Clay. Of Dr. Atlee's cases, the operation was completed in 19; not completed in 4, on account of adhesions, &c.: of the complete operations, 11 died, or 58 per cent.; of the 4 incomplete cases, 1 died. Of Dr. Bird's cases, 12 were complete and 20 incomplete operations. Of the complete, 4 died, or 33 per cent. Of Dr. Clay's cases, 40 were complete and 9 incomplete. Of the complete, 14 died, or 34 per cent.; of the incomplete, 2 died. (This account of Dr. Clay's operations does not appear to be the latest of that author. In Dr. Clay's 'Obstetric Surgery,' London, 1856, we find the following summary:—71 operations, of which 49 recovered, and 22 died.)

Dr. Lyman's analysis shows that:

In three-fourths of the cases, the operation could not be completed.

The rate of mortality in all the operations was 40·13 per cent.

In seven-tenths, the operation was completed, with a resulting mortality of 42·78 per cent.

In the unfinished operation, the mortality was 30·68 per cent.

The proportion between the whole number of recoveries *after the removal of the tumour*, and the whole number of operations undertaken in hope of such a result, we find to be as 39·66 to 100, or less than two-fifths!

Adhesions caused the abandonment of the operation in 22·06 per cent. of the whole number, or caused 77·27 per cent. of the failures.

(Dr. Clay states that adhesions constitute no contra-indication to the operation—except pelvic adhesions.)

No tumour was found in nearly three per cent. of the whole.

When adhesions complicated the removal, 47·82 per cent. died; when no adhesions complicated the removal, 32 per cent. only died.

Of the whole number of short incisions, 30·76 per cent. died; of those completed, 38·33 per cent. died; of those not completed, 22·80 per cent. only died.

Of the whole number of long incisions, 41·95 per cent. died; of those completed, 41·50 died; of those not completed, 45 per cent. died.

Previous tapping does not always cause adhesions.

As far as these cases go, the mortality is least between the ages of fifty and sixty, and greatest under twenty.

The mortality is least when the disease is of between three and four years' duration.

There is but little difference in the mortality between the married and single.

The right ovary is more often diseased than the left, though less so than often stated.

Of the above fatal cases, 42·35 per cent. were from peritonitis, 25·52 per cent. from hæmorrhage.

Death ensued, upon an average, on the eighth day, the average of deaths from peritonitis being also the eighth day; and of those from hæmorrhage, twenty-two hours.

In more than ten per cent. of the cases, important errors of diagnosis occurred.

Dr. Lyman submits the following deductions:

(1.) The mortality attendant upon ovariectomy is no greater than it is after other capital operations.

(2.) The mortality resulting from extensive incisions of the peritoneum is generally over-estimated.

(3.) Fully-developed cystic disease tends rapidly to a fatal result.

(4.) No method of treatment heretofore devised for it is so successful as extirpation—excepting, possibly, that by injection with iodine, of the results of which we have as yet insufficient statistics.

(5.) The operation is unjustifiable in the early stages of the disease.

(6.) After active development has commenced, with the supervention of constitutional symptoms, the sooner the operation is performed, the greater the chance of recovery.

(7.) No rule can be laid down as to the length of the incision, other than the general one—that the shorter it is, the less the mortality; and that therefore the primary incision should always be small, and extended afterwards as may be necessary, according to the exigencies of each particular case.

(8.) If, after the operation is commenced, extensive adhesions should be discovered, either the complete abandonment of the intended extirpation, or the attempt to cause supuration and gradual contraction of the cyst by means of a permanent external opening, are to be preferred to the division of the adhesions and completion of the operation, as originally designed.

4. The observation of Dr. Auber is exceedingly interesting. He was applying the volta-faradic apparatus of Duchenne on the right breast of a woman who had been delivered seven months, who had not suckled. The object of applying it was to remove an anæsthesia of the skin. After the third application, the patient complained of being as she was after her milk fever, and obliged to cover her breasts, both of which moistened her dress. On the fifth application, some milk, of which a spoonful was collected, was examined by microscope. It seemed quite similar to that of a woman newly delivered.

Dr. Auber refers to a case in which the lacteal secretion was in like manner produced by M. Becquerel. He anticipates the possibility of thus making any woman fit to suckle.

5. Dr. Bertel records a case of cure of vesico-vaginal fistula by a method which consists in pinching and crushing the vaginal mucous membrane. A woman, aged fifty, had suffered from a fistula for fourteen years. It was deeply-seated, and engaged the body of the bladder on a level with the os tincæ. It was capable of admitting the tip of the finger through the vagina into the bladder. It was slightly oval; its larger extremity was directed towards the fundus of the bladder; its edges are somewhat thickened and hard; it was not funnel-shaped. The lesion followed a laborious delivery. M. Bertel applied a pinching instrument to nip the edges of the fistula together, which he

promises to describe hereafter when made more presentable and scientific. On the third day it was found that no urine escaped into the vagina. On removing the instrument, the opening was found closed. In its place was a ridge of a reddish-brown colour, easily bleeding, half the size of a cherry. Henceforth all urine passed by the urethra—no opening could be detected. The cure Dr. Bertel describes as perfect.

II. PHYSIOLOGY AND PATHOLOGY OF PREGNANCY.

1. *On the Aptitude for Conception and the Duration of Pregnancy in Women.* By Prof. W. L. GRENSER. (Schmidt's Jahrb., No. 12. 1856.)
2. *On the Insanity of Pregnant Women.* By IDELER. (Annalen des Charité-Krankenhauses zu Berlin. 1 Heft, 1856.)
3. *The Physiological Glycosuria of Lying-in, Suckling, and some Pregnant Women.* By H. BLOT, M.D. (Gaz. Hebd. 1856.)
4. *Pregnancy in a Two-horned Uterus.* By Dr. LUMPE. (Wochenbl. Zeitschr. der k. k. Gesellsch. d. Aerzte zu Wien. August, 1856.)

1. Professor Grenser's interesting communication is in the form of an invitation to German physicians to collect observations on the aptitude for conception and the duration of pregnancy. He refers to the ovular theory and the observations of Bischoff, and lays down the following points as those which call for investigation:

- (1.) The duration of menstruation.
- (2.) The moment when the rupture of the Graafian follicle and the escape of the ovulum take place.
- (3.) The duration of the aptitude for fructification of the escaped ovulum.
- (4.) The life-duration of the ovule within the female genitals; and lastly,
- (5.) The menstruation type.
- (6.) Whether there really exist in woman an interval between the menstruation periods, during which complete coitus cannot be fruitful; whether this can only be the case in the four-weekly menstruation type and in deferred menstruation, or also in the three-weekly menstruation type, and so forth.

2. The memoir of Ideler is an elaborate argumentative essay, written in support of the proposition that the insanity of pregnant women proceeds from pure mental disorders abstracted from physical lesions. It is an example of the emotional theory of the etiology of insanity carried to excess. Ideler, it is well known, holds a foremost position amongst representatives of the spiritualist, as contra-distinguished from the materialist psychologists. He cites two cases in illustration of his doctrine; and since it is useful to look at the important subject of insanity in women as associated with the functional activity or disorder of the generative system from the so-called spiritual point of view, we extract the key-passages of Ideler's commentary, and a summary of the cases. He observes, that a certain dread that death will happen at the period of delivery is so constant in pregnant women, that it may be looked upon as natural. It will not, he says, be denied that the fear of death of pregnant women is frequently the cause of severe nervous attacks, abortions, and the unfortunate course of delivery and puerperal state. He does not, however, undertake to follow out the etiological relation of the death-fright to insanity. He says, that in many cases the entire physiognomy, and every appearance and act of the insane, bear the complete expression of fear. In the full development of despair, the patients lament that the devil, murderers, wild beasts, destroying forces of nature, flames, deluges, rush upon them. The two following cases he relates as unquestionable instances of the origin of mental disorder in death-fright.

Frau H., thirty-six years old, began to menstruate early in life, and continued to do so regularly. She married at twenty; had had four deliveries; the first

labour was accomplished by the forceps, through which she was so severely affected, that her child had to be given over to a nurse. An abortion of a four or five months' fetus followed, after which she went abroad too soon, and brought on uterine hemorrhage and such prostration that she expected to die. The third delivery brought a full-grown child into the world. In 1854, being for the fourth time pregnant, the recollection of the severe forceps-delivery and the nearly fatal flooding was constantly present, and wrought the conviction that she would not survive the next labour. In consequence of these depressing cares, she felt herself also bodily weak, and lost her sleep. She often felt herself unequal to her work, especially when pains in the right side of the abdomen came on. Having gone out one day in a short gown, she fancied that all the people in the streets looked at her, and on her return home that they came through the walls to mock her. From this time she had the vision of a grave before her, even during waking. Suddenly she conceived aversion for her husband; fancying he wanted to murder her, she tried to jump out of the window. This anguish increased, so that at last a true outbreak of mania took place. No furor. She was admitted into the insane division of the Charité, where the described condition persisted for several days. *On account of her pregnancy, all curative treatment was postponed*; and, for precaution's sake, the strait-waistcoat was put on. She was delivered of a healthy child. The puerperal period passed well, but without change in her mental state. She remained for months afterwards stupid, inactive, buried in herself. A persevering use of the douche first aroused her from this apathy. She ultimately recovered.

The other case brought forward as an instance of pure primordial psychical disturbance, is equally characterized by evident somatic disorder. The state of gestation is itself a somatic complication largely, if not primarily, concerned in the etiology of these cases of mental alienation. It must be obvious that the author has selected a theme beyond the power of human reason to demonstrate; for who can hope to disentangle mind from matter, and study the essential properties of each apart from the other?

3. For the particulars of Mr. Blot's observations, we refer the reader to the last Report on Physiology in this Review, Jan. 1857, p. 250.

4. Dr. Lunnpe refers to a description, published by him in 1843, in the Oesterr. Med. Wochenschr., of the autops of a woman who died of metropéritonitis four days after delivery. In this case the uterus was found divided longitudinally as far as the os internum. The os internum and cervix were simple. The right cavity, which contained no ovum, was enlarged, and lined with a thin vascular decidua.

The following case is a further illustration of this remarkable anomaly. A woman, aged thirty, who had lived in barren wedlock for ten years, sought advice on account of menorrhagia and leucorrhœa. Dr. Lumpe found the external genitals quite normal; the vagina, simple for the first third from outlet, was apparently divided into two equal canals throughout the upper two-thirds. The septum presented a complete duplicature of the vaginal mucous membrane, which was attached in front along the urethra, and hung loose, flapping like a sail behind; so that during exploration by the finger, it sometimes covered the right and sometimes the left cervix in such a manner, that on superficial examination, the bicornute condition of the uterus might have been overlooked. An unequivocal solution was only obtained by using two fingers. From each half-vagina was felt a completely developed cervix. Both cervices were of equal size, and on same level; they diverged from the point of union to either side, nearly at a right angle; they were quite symmetrical, and provided with a small cross-fissured os, which admitted a sound. No clear examination of the bodies of the uterus could be made by palpation;

but the fundus appeared to be bent right and left, exactly as was the case with the two cervixes.

Dr. Lumpe had no opportunity of seeing this case again till some time after, when he was suddenly called to separate an adherent placenta. In performing this, Dr. Lumpe found a complete cavity, bent towards the left like a retort; the placenta was adherent to the fundus; this had a remarkably long oval form. The right non-pregnant uterine-horn had been so much hypertrophied, that it reached nearly half the size of the other. The vaginal portion of the right horn was quite effaced, and its orifice only marked by a soft, cushion-like ring.

Labour had come on at the beginning of the ninth month without obvious cause, and had proceeded naturally and easily under tolerably strong pains. The child was delicate, but lively. The puerperal period was passed favourably. The involution of the uterus proceeded regularly as in the undivided uterus.

III. LABOUR.

1. *Inversion of the Uterus replaced on the Third Day.* By J. G. PORTER, M.D., of New London, Conn. (American Journal of Medical Science, July, 1856.)
2. *Complete Inversion of the Uterus at the time of Labour, with remarkable Absence of the Ordinary Symptoms.* By W. F. MONTGOMERY, M.D. (Dublin Hospital Gazette, April, 1856.)
3. *A Repelling Ring in Shoulder Presentations.* By Dr. CAMILLE BERNARD (d'Apt). (L'Union Méd., Dec. 30th, 1856.)
4. *Rupture of the Uterus; being a Sequel to a Monograph on this Subject of 1848.* By JAMES D. TRASK, M.D. (American Journal of Medical Sciences, July, 1856.)

1. Dr. Porter's case of inversion of the uterus is an illustration of the possibility of replacement on the third day. A lady, aged thirty, had a not severe labour on the 18th of March. The delivery of the placenta was delayed two hours, owing doubtless to atony of the uterus. It came away somewhat torn, but undue interference was disclaimed. Previous and subsequent to its delivery there was much flooding and great prostration. On getting up in bed some hours after to urinate, the uterus made a complete descent through the external parts. Increased prostration followed; micturition became impossible until after the re-position of the uterus. She was seen by Dr. Porter three days after the accident. Flooding not severe, but great prostration. The uterus filled the vagina. Gentle but gradually increasing force with the back of the flexed fingers caused the mass to diminish in size. As it grew less in dimensions it was more easily grasped, and ultimately the uterus, with the band encircling and compressing it, was used as a stem, with which upward pressure was exerted. The restoration then became much more rapid. Complete relief followed the re-position. A mild attack of phlegmasia dolens followed, but she eventually recovered.

2. Dr. Montgomery's case of inversion of the uterus illustrates another variation from the ordinary pathological history of these cases. Mrs. M. was delivered of her fourth child, head presenting. The labour had been lingering, and two half-drachm doses of ergot had been given, with little apparent effect. As the placenta did not seem likely to come away, the womb being sluggish, the nurse was directed to make pressure over the uterus, while the doctor drew upon the cord. In about ten or fifteen minutes the placenta came away, followed on the instant by a large round tumour, which passed completely out of the vagina. This was ascertained to be the uterus completely inverted. It was returned within the vagina without much difficulty, but pressure on the fundus failed to restore it to its proper place. There was some hæmorrhage, but not much. There was a pressing desire to make water, but scarcely any

other symptom. This was her condition when Dr. Montgomery was called in, an hour and a half after delivery. The doctor found the whole pelvic cavity filled up with a firm fleshy tumour, *perfectly insensible*; and in passing the finger along it upwards, it was found to terminate in a cul-de-sac all around. The patient was placed under chloroform; the tumour grasped, it was compressed as strongly as possible from the lateral circumference towards the centre, and at the same time pushed upwards and forwards towards the umbilicus; for several minutes this seemed without effect, but at length the tumour began to yield, receding and gliding by a spontaneous movement of the whole tumour upwards, and not of the lowest part of the fundus, re-entering itself; and then all at once it almost sprang away from the hand, and was restored to its place. The resistance to the re-position was so great, says Dr. Montgomery, that he does not think he could have succeeded had not the patient been under the influence of chloroform. She did well.

3. Dr. Camille Bernard has contrived a new instrument for the purpose of pushing back the shoulder when it presents, so as to admit of bringing down the head or feet in its place. The instrument consists of a ring about two inches diameter, moveable on two stems sixteen inches long. It offers the following advantages: it embraces firmly the arm by its base; it pushes back the shoulder without danger in any direction, and keeps it up as long as may be desired, whilst you are either proceeding to seize it by the hand, or to effect turning by the feet. Dr. B. relates a case in which he used his instrument. The left shoulder presented the sternum forwards. The arm was outside the vagina, and livid. Child dead. Had the child been born living, he would have preferred turning by the head; but as it was, he determined on podalic version. He passed his ring up over the arm, and fixed it in the armpit by fixing the two stems one against the other; then supporting the uterus externally with the left hand, he gently pushed back the shoulder; it gradually receded, and was soon enclosed within the vagina. He then passed his left hand into the uterus, which was not obstructed by the instrument, and having seized the right leg, he imparted a movement of evolution by the combined operation of traction on the leg, and pushing by the instrument. The woman did well.

Dr. Trask's paper on the Statistics of Rupture of the Womb is a valuable continuation of his former well-known contribution on this subject. This first paper was published in the *American Journal of Medical Sciences* in 1848. It contained an analysis of 303 cases. He now adds more than 100. We can only reproduce some of the more striking deductions. The cases now presented, he says, afford still further confirmation of the views urged more especially by Dr. Murphy, that a diseased condition of the womb is frequently met with in cases of this accident. Thus, the uterus was *thin and brittle* in 1 case; *softened* in 7; in 1 the *peritoneum* was extensively *detached*; in 2 the uterus was in a *scirrhus* condition; in 1, the uterus had long been *diseased*; in 2, deeply *ecchymosed*; in 1 the walls were *flabby*; in 1 there was *great development of muscle*. Of 22 cases in which the point is distinctly stated, in 19 there was positive disease, and in 3 no appreciable disease. Dr. Trask observes, that his second collection of cases exhibits a larger proportion of cases in which the womb is reported to have been diseased than does his first. He attributes this to the greater attention directed to this point since 1848. (It is especially desirable, in future investigations, to examine the structure of the womb in the neighbourhood of the rent, by the aid of the microscope, and to note if the muscular fibres are advanced in the process of fatty metamorphosis which takes place normally after labour.)

Dr. Trask observes, that the cases in which disease was found were cases of *spontaneous* rupture.

In 11 cases the pelvis was more or less contracted. The head was impacted from disproportion in 3 cases. There was obliquity of the os in 2 cases, the

pains being directed against the pelves. In 1 case the descent was prevented by an enlarged ovary.

Rigidity of the Os.—In 3 cases obstinate rigidity of the os appeared to be the cause of rupture.

Obstructing Bands in the Vagina.—The resistance of these apparently caused rupture in 4 cases.

Time from Beginning of Labour to Rupture.—Taking the whole of the cases (i.e., of both series) in which this is specified, it is found that

Rupture occurred in	6 hours and less	in 38 cases.
"	" 12 "	over 6 in 36 "
"	" 18 "	over 12 in 10 "
"	" 24 "	over 18 in 20 "
"	" 36 "	in 16 "
"	" 48 "	in 14 "
"	" Three days and less	in 11 "
"	" Four "	in 2 "

Comparing these with the duration of labour in the 15,850 cases reported by Dr. Collins, we find that 80 per cent. terminated within six hours, 16 per cent. in from six to twelve hours.

In 5 cases ergot was given.

Situation of the Rupture.—In rupture during pregnancy, 4 involved the fundus. During labour: Of the entire number of cases, 110 are distinctly spoken of as involving the cervix, 17 the fundus, 71 the body of the womb. Of these 71, by far the larger part are reported as ruptures of the anterior or posterior part, or of the right or left side. In 4 cases the peritoneum was not involved.

The largest number of cases occurred at the age of thirty years.

It was very frequent in first pregnancies.

In 3 cases the rent took place with a cracking noise, heard by the patient or bystanders.

Influence of Delivery on Mortality.—Total of all cases delivered, 207. Of these, 77 recovered, or 37 per cent. Total of all cases undelivered, 115. Of these, 27 recovered, or 23.5 per cent.

IV. PHYSIOLOGY AND PATHOLOGY OF THE FETUS.

Case of Malformation of the Extremities through Stricture, as a Contribution to the History of Spontaneous Amputation. By Dr. FRICKHOFFER, of Idstein. (Virchow's Arch. für Pathol. Anat., Sept. 1856.)

Instances of spontaneous amputation of the fetal limbs in utero, especially where the *modus operandi* seems clear, are of interest, as serving to illustrate the theory and conclusions upon this question so ably set forth by Dr. Montgomery. The subject of Dr. Frickhoffer's case was the tenth child of healthy parents; itself was a well-nourished, strong boy. The following particulars were observed the day after birth:

Above the left elbow-joint there was a deep stricture of the skin and other soft parts down to the bone; the parts below this stricture were atrophied, but oedematous; the hand-joint on the radial side bent, and the fingers of this hand in permanent contraction.

Below the left knee-joint there was a still sharper stricture, as if one had divided the soft parts by the circular incision down to the bone; still the cutis was continued from one cushion to the other; the whole lower leg was atrophied, but oedematous, and upon its fore-part were three parallel and cross-running depressions; the foot itself was twisted forwards, as in *talipes varus*.

The middle and ring-fingers of the right hand were united by skin from the second joint; on the back of the ring-finger, directly over the joint between the fore and middle phalanx, there was a protuberance the size of a

pea, caused by a double stricture before and behind it, like those on the left arm and leg.

The most remarkable appearance was a strong ligament, which appeared to be a continuation of the skin running from the radial aspect of the foremost joint of the index finger of the right hand; this was an inch and a half long. A similar, but small, wart-like continuation, was found at the extremity of the foremost joint of the right little finger.

In other respects, the child was normally made, strong, and well nourished. Unfortunately, the placenta and remains of the ovum had been destroyed at time of labour.

According to the midwife, there was great difficulty in the delivery of the shoulders, and she had aided the expulsion by hooking her finger in the nuchal pit, whilst during a pain a distinct cracking was heard. No twisting of the cord was observed. The author is convinced that all the strictures were caused by the cutting of the strong ligamentous continuations such as described.

The first thought was to complete the amputation of the leg, to rid the child of what was presumed would soon be a burden. But after ten weeks, it was observed that the strictured spots had risen up considerably, and the limbs had acquired a more perfect nutrition.

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